

JOHNSONS
ARITHMETICK
In two BOOKS.

The first of Vulgar Arithmetick,

With easie Rules to work all the first
four parts of Arithmetick, in whole
Numbers and Fractions.

The second of Decimall Arithmetick;

Whereby all Fractionall Operations are
wrought in whole Numbers in Merchants
Accounts, without Reduction, with
the perfect working of Interests
and Annuities.

By JOHN JOHNSON,
*Surveyer, and Practitioner in the
Mathematicks.*

The Sixth EDITION.

Whereto is added Tables of Interest exactly calculated
at 6 per cent. with other Tables, as the Reduction of
Weights, value of Leases and Annuities, the weight
and value of English Gold; Rebate at 6 per cent. very
delightfull and profitable.

London, Printed by T. N. for J. Sweeting,
at the Angel in Popes-head Alley. 1655. *seyr.*

pill. Lichthe semip.

Extractum Ruscii: semi. semip:

Agregatius: semi. semip:

Misceantur cum Tixipp:

Oculorum aut Rosae.

1778

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The

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To the Right Honorable and Worshipfull the
Merchant Adventurers of London and Bristoll.

THe very Arts (Right Honorable and worshipfull) which were wont to bear the attributions of *bonsta & liberales*, seem now to temporize, and to have learned the new-found skill of Equivocation. For, howsoever the former of these denominations adhereth constantly unto the Professors of Mathematick Sciences, yet the other which was once derived *à liberalitate*, and then intimated that they were anciently accustomed to perform liberall recompence to their lovers and followers, hath now (to spare cost) purchased a different crymology *à libertate*, as properly accommodated to such as are *liberi*, free-born, or (as our peculiar term carrieth) Freemen. Which being so, and seeing that in this particular, as well as in many other of greater consequence, *Tempora mutantur--*: I am thereby enforced to make up the old verse,-- adding, *& nos mutamur in illis*; and to apply my long experience, together with tedious studies bestowed in this present Art of Numbers, to the use and behoof of those persons to whom by the generall appellation it properly belongeth, namely, to the studious thereof in these honorable Cities. Which is the cause that I presume (without farther self-praise of what I have brought more usefull, more easie, or more certain and delightfull in the operations, then hath been seen before) to present my labours to your Honorable and Worshipfull judgements, to whom I owe of duty, whatsoever can be of me performed, to the furtherance of Art, and the honor of these noble Cities, and the worthy Companies therein.

Your Honors and worships devoted,
in all humble respect,

JOHN JOHNSON Surveyor.

The Epistle to the Reader.

GEntle and courteous Reader, having for many years past spent my time both in reading, practicing, and conferring with others in and about the study of the Mathematicall Sciences; and through great pains and travell at the request of divers worshipfull Gentlemen, Merchants, and others of my very loving friends, I have at last collected and gathered together many excellent Rules and easie Abbreviations in the Science of Arithmetick, which at the intreaty, and by the means and help of some of them, I have at last made bold here to present abroad unto the worlds view, the first fruits of some idle hours study; the most part whereof I do acknowledge to have gotten by the practice and use of the most excellent Instrument invented by Mr. *William Prat*, called, *The Jewell of Arithmetick*, in which I have done the best of my endeavours not to hide that Talent in the earth, which God hath bestowed upon me for the benefit of others; but rather to his great glory and praise, and for the benefit of my Countrey, and for the furthering of all that are studious in the Art of Numbers, I have laboured to set it forth in the most brief, plain, and easie manner that I could, fit for the understanding of the weakest and meanest capacity. In which if any thing shall seem obscure or doubtfull to any man, I could wish my self were present to resolve his doubts: for I have endeavoured to make the Rules as brief, short, and easie as I could devise.

In my first Book I have intreated concerning *Vulgar Arithmetick*; with new inventions of my own; in all the first four parts of *Arithmetick*, viz. in *Addition* and *Substraction*, with two severall kinds of
Multiplication,

To the Reader.

Multiplication, not charging of the memory, never before extant in any Author that I have read, with 4 several kinds of Division, the latter of them bringing the proof by *Addition* of the figures under the Dividend, without any multiplication or casting away of nines according to the accustomed manner.

Again, in the work of Fractions I have set them forth in plain & perfect figures, after another manner of mine own invention, because the fractionall figures in most books of Arithmetick were so unperfect, that they were scarce to be discerned, and in this manner they will perform all fractionall operations, as well as if they were set out according to the usuall manner. In the end of which Rules I have shewed the reasons and proofs of Fractions by the known parts of coin.

Thirdly, in the 2^d part of the former book, I have set forth Reduction both in coin sterling, weights, measures, time, and motion, the Tables whereof are in the first part of the book, with divers Rules how to bring pence or farthings at the first work into pounds, shillings, and pence; with divers questions wrought by Reduction; with Progression Arithmetical, and Geometrical, with examples.

And lastly, I have shewed how to work the Rule of *Three* of Direct & Converse, both in whole numbers and fractions, after divers several manners of working; and how to find the Divisor in any question, as also divers ways to work Fellowship, Barter, Exchange, Allegation, Interest, Position, and all other operations Arithmetical, with examples, and brief Rules of every part.

In my second Book of *Decimal Arithmetick* I have first described out the parts and use of the Decimall Table, and how to set forth any number given in Decimals.

The Epistle, &c.

Secondly, I have shewed how to work all the several parts of Arithmetick, viz. *Numeration, Addition, Substraction, Multiplication, and Division* in Decimals, with examples and proofes of every work in the known parts of coin.

Thirdly, I have handled in as brief manner as I could, the Rule of *Three, Fellowship, Barter, Exchange* and *Interest* in *Decimal Arithmetick*, as before in *Vulgar*, in which you may perceive the great labour that is avoided in *Vulgar Arithmetick*, with divers examples and proofs of the same.

Lastly, I have added a small Treatise of *Interest* and *Annuities*, with the manner how to calculate Tables, or Breviats at any rate or years purchase given: All which I have drawn into a pocket volume.

And thus hoping of your friendly censure and acceptance of these fruits of my labours, I cease, hoping to have my true endeavours and meaning wel taken; desiring a blessing from God upon these my poor labours, wishing all happiness to the *London* and *Bristol Merchant*, and to all others, I take my leave.

John Johnson,

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The Stationer to the Reader.

THe courteour Reader may take notice, that whereas the vulgar parts of this Arithmetick were too brief and obscure for learners in the former Impreſſions, they are now made more eaſie by the addition of many plain examples: So that the meanest Capacities may receive a greater benefit, and the Ingenious nothing prejudiced; as also the additions of many exact Tables of Interest at 6. per cent. Of Rebate at 6. per cent. Tables of Annuities, Valuation of Leases, reduction of Weights; the names, weight and value of English Gold; very delightful and profitable: So that it is esteemed by Ingenious Accomptants, the most compendious piece of this subject extant.



JOHNSONS

ARITHMETICK.

CHAP. I.

Of Numeration.



umeration is the first part of Arithmetick, which shews how to express and pronounce the true value of any number by ten Figures or Characters, wherof the tenth is a Cifer, signifying nothing of it self, but being joyned with figures, increaseth their value; the shape of the ten figures with their single value, is as follow.

one, two, three, four, five, six, seven, eight, nine, cifer.

1. 2. 3. 4. 5. 6. 7. 8. 9. 0.

How to express and pronounce the value of any Number.

Any Number under nine, is expressed by

 the

the single figures above ; but to express a number above nine, observe these Rules following ; in a number above one figure, that figure, next the right hand, is the place of units , and signifies but his own single value, as the figure of 1. signifies but one, the figure of 4 but 4, 8 but eight, and so of the rest : but where two or more figures are joyned together, the figure in the second place toward the left hand , signifies ten times his single value. As for example, the figure of 1 placed on the left side of a figure or cifer, signifieth ten thus, 10. the figure of 3 placed thus, 30, thirty ; 8 placed thus, 80 eighty, as in these examples following,

11	Eleven,	46	forty six,
12	twelve,	52	fifty two,
16	sixteen,	58	fifty eight,
21	twenty one,	66	sixty six,
25	twenty five,	78,	seventy eight,
28	twenty eight,	97	ninety seven.

A figure in the third place towards the left hand, signifies one hundred times his single value ; as in these examples,

100 one hundred, 200 two hundred,
 442 four hundred forty two,
 765 seven hundred sixty five,
 999 nine hundred ninety nine, &c.

A figure in the fourth place toward the left hand, signifieth one thousand times his single value, as 1000 one thousand, 8642 eight thousand six hundred forty two. A figure in the fifth place signifieth ten thousand times his single value, as 10000. ten thousand; a figure in the sixth place toward the left hand, signifieth one hundred thousand times his single value, as 654732, six hundred fifty four thousand seven hundred thirty two; in the seventh place a figure signifieth his single value in millions, in the eighth place ten times his value in millions; in the ninth place one hundred times his single value in millions; in the tenth place, one thousand times his single value in millions; in the eleventh place, ten thousand times his single value in millions, and so infinitely, names may be given for the true value of any figure in any place.

Now to express any number consisting of many figures, make a period or distinction with your pen, between every three figures, beginning at the right hand; as in this Example consisting of twelve Figures, 123,456, 789, 101. or a distinction with a stroak thus, 123|456|789|101.

By what hath been already said, the value

lue of any figure in any of these twelve places, may be understood. Yet for the better pronouncing of any such great number, take notice that the first period of three figures towards the right hand, is the place of units, tens, and hundreds; the second period is the place of units, tens, and hundreds of thousands: the third period is the place of units, tens, and hundreds of Millions: the fourth period is the place of units, tens, and hundreds, of thousands of millions: So if you would pronounce the whole number distinctly, read thus; one hundred twenty three thousand four hundred fifty six millions, seven hundred eighty nine thousand one hundred and one. These Rules being observed, there is no number though consisting of many figures, but may be really expressed and pronounced by the meanest capacity: Numeration hath four parts, Addition, Subtraction, Multiplication, and Division, by which all Arithmetical operations are performed. The next part necessary to be learned, is Addition.

CHAP. II.

Of Addition.

ADdition is that part of Arithmetick which serveth to add or collect together divers numbers or sums of severall denomination, and to express their totall value in one sum : for the understanding thereof alwayes observe to place the numbers or sums of the like degree one under another, that is, place Unite under Unite, tenth under tenth ; and in coins, pound under pound, shilling under shilling, and pence under pence : As for example, suppose the number 4235, and 2432 be two numbers given to be added together, that is, how much will the two numbers make in one, place them one under another, and draw a line underneath ; as in this example,

$$\begin{array}{r} 4235 \\ 2432 \\ \hline \end{array}$$

Then adde together the two first figures towards the right hand being in the place of units, which is 2 and 5, say, 2 and 5 make 7, which 7 place under the line in the place of units thus,

$$\begin{array}{r} 4235 \\ 2432 \\ \hline 7 \end{array}$$

7

B 3

Then

Then adde the two next Figures under one another, in the place of tenth, which is 3, and 3. say 3 and 3 makes 6, which place under the line in the place of tenth, thus,

$$\begin{array}{r} 4235 \\ 2432 \\ \hline 67 \end{array}$$

Then adde together the two next Figures, which is 4 and 2, they will make 6, which 6 place under the line in his proper place, thus,

$$\begin{array}{r} 4235 \\ 2432 \\ \hline 669 \end{array}$$

Then adde the two Figures in the fourth and last place, being 2 and 4, which is 6, and place it under the line, as in this example,

$$\begin{array}{r} 4245 \\ 2432 \\ \hline 6667 \end{array}$$

So that 4235 and 2432 being added together, makes 6667.

Another example of more Numbers, if you desire to know what the totall value of these four Numbers added together, will amount unto, place them one under another,

ther, drawing a line under them, as is here expressed,

$$\begin{array}{r} 6723 \\ 3456 \\ 4575 \\ \hline 6713 \end{array}$$

Then adde the Figures in the Units place together, being the first Row towards the right hand; say, 3 and 5 is 8, and 6 is 14, and 3 is 17; here you are to observe in the adding of any numbers, for so many tens there is in the place of Units, so many times one must add to the place of tenth; and so many tens there is in the place of tenth, so many times one must be added to the place of hundreds; as in this example here you have 17 in the place of units, therefore place 7 under the line in the units place, thus,

$$\begin{array}{r} 6723 \\ 3456 \\ 4575 \\ \hline 6723 \\ \hline 77 \end{array}$$

And carry on to be added to the place of tenth, saying, 1 and 2 is 3, and 7 is 10 and 5 is 15, and 2 is 17; place 7 under the line in its proper place, thus,

B 4.

6723.

Of Addition.

$$\begin{array}{r}
 6723 \\
 3456 \\
 4575 \\
 6723 \\
 \hline
 77
 \end{array}$$

And for the 10 carry 1 to the next place, saying, 1 and 7 is 8, and 5 is 13, and 4 is 17, and 7 is 24, place the 4 under the line thus :

$$\begin{array}{r}
 6723 \\
 3456 \\
 4575 \\
 6723 \\
 \hline
 477
 \end{array}$$

And for the 20 carry 2 to be added to the next, and proceed, saying, 2 and 6 is 8, and 4 is 12, and 3 is 15, and 6 is 21. Now in regard you finished your sum, place your 21 under the line thus :

$$\begin{array}{r}
 6723 \\
 3456 \\
 4575 \\
 6723 \\
 \hline
 21477
 \end{array}$$

By which may be perceived that the four numbers being added together, makes 21477. Observing these divers directions, you may adde as many Numbers together as you please,

please. For the adding of mony, weights, measures, time and motion, take the Rules following.

In Addition begin to adde your sums at the right hand with the smallest numbers or denominations first, and gathering of their totall, mark how many of the smaller makes one of the next greater; as if your Addition be farthings; for every four farthings carry one peny in mind to be added to the numbers in the place of pence, and for every 12 pence put one shilling into the number of shillings, and for every 20 shillings one pound into the place of pounds; and therefore to know how many of the smaller denominations make one of the next greater, I have here added in this place the severall Tables of Coin Sterling, of Weights, of liquid Measures, and dry Measures, of long Measures, of Time and Motion; which are very necessary to be known of every Practitioner in Arithmetick, before he proceeds any further in the practice of Arithmetick, being used in every particular Rule of Arithmetick more or less.

The Table of Coyn Sterling.

Four farthings makes	Pence	Farth.
one penny —	1	4
One shilling is —	12	48
One pound sterling is		
20 shillings —	240	960
One hundred pound		
Sterling is —	24000	96000

Example.

l.	s.	d.	l.	s.	d.	q.
785976.	17.	3	324.	8.	11.	1
80254.	10.	7	222.	17.	3.	1
23547.	11.	0	187.	10.	2.	0
7853.	12.	2	354.	12.	1.	0
248.	00.	0	1856.	00.	2.	0
93.	10.	1	7859.	1.	11.	1
7.	11.	3	3275.	1.	9.	0
<hr/> Sum. 897981.			<hr/> 14070.			
	12.	4		12.	3.	3

The Explanation of these Examples.

In the first example toward the left hand, I begin with farthings, which are 3, which I set down: then next 9 pence and 11. is 20, and

and 2 is 22, and 1 makes 23, and 2 makes 25, and 3 makes 28. and 11 makes 39 pence; or 3 shillings 3 pence; I set down the 3 pence, and carry in mind the 3 shillings to be added to the place of shillings. Then add the several summs of shillings, which are 1. 1. 2 7. 8, the totall is 19, and the 3 in mind makes 22 shillings; set down the 2 shillings, and keep two tennes to be added to the tennes of shillings, which are 3 tens, which makes 5 tens, or 50 shillings; set downe the odde ten to the two shillings, which makes 12 shillings, and cary 2 pound for the forty shillings, to the next place of pounds which are 5. 9. 6. 4. 7. 2. 4. and the 2 in minde makes 39; leave the 9 under the place of unites, and carry 3 tens in minde, and 7. 5. 5. 5. 8. 2. 2, totall is 37; set downe the 7 under the place of tens and carry 3 in mind for the 30 tens, which is 3 hundred: then 3 in mind, and 2. 8. 8. 3. 1. 2. 3, total is 30; set a cypher or 0 in the place of hundreds. and carry 3 for the 30 into the place of thousands; then last of all 3 in mind, and 3, 7, 1, makes 14 thousand: and because it is the last sum, you must set them all down placing the 4 under the place of thousands, and the 1 one place more towards the left hand, and then the total sum
of

of those particulars will be 14079 pound 12 shillings 3 pence 3 farthings, as appeareth in the example; and in the like manner is the other example to be cast up into one totall: and so I will here end with addition of Coin, and put a severall example of every Table for the full *Tables* and perfect understanding of the said Table, which are of great use in all the severall Rules of Arithmetick.

The Table of Haberdepoyse weight.

<i>Haberd. the pound.</i>	<i>oun.</i>	<i>Dra.</i>	<i>Scrup.</i>	<i>Grain.</i>
One pound is —	16	128	384	7680
One half pound is	8	64	192	3840
One quarter of a pound is —	4	32	96	1920
One eighth of a pound is —	2	16	48	960
One sixteenth of a pound is —	1	8	24	480

<i>The hundred.</i>	<i>pozt.</i>	<i>Oun.</i>	<i>Dram.</i>	<i>Scrup.</i>
One hundred is---	112	1792	14336	43008
One halfe hundred is —	56	896	7168	21504
One quarter hundred is —	28	448	3584	10752
One half quarter hundred is —	14	224	1792	5376

Examples

Examples of Weights.

C.	qu.	li.	oun.	C.	qu.	li.	oun.	dr.
27.	3.	27.	6.	127.	3.	17.	8.	3.
18.	1.	17.	12.	118.	2.	10.	12.	1.
13.	2.	10.	3.	33.	0.	0.	0.	0.
73.	0.	0.	5.	17.	1.	12.	2.	3.
83.	2.	5.	12.	22.	3.	1.	7.	0.
<u>2</u>	<u>2</u>	<u>2</u>		<u>17.</u>	<u>0.</u>	<u>10.</u>	<u>3.</u>	<u>0.</u>
				<u>2</u>	<u>1</u>	<u>2</u>		
216	2	5	6	336	3	24	00	7

The Explanation.

In the Haberdepoyse weight, 20 graines make one scruple, 3 scruples one dram, 8 drams one ounce, 16 ounces one pound, 112 pound is one hundred of the Haberdepoyse weight, whereby is sold all kinde of Merchandise usuall in this Realme, and therefore in addition of weights Haberdepoyse, for every 3 scruples adde one dram, and for every 8 drams one ounce, and for 16 ounces 1 pound, for 28 pound one quarter of a hundred, and for every four quarters one hundred. First, I begin with the drams in the first example to the right hand, which are 3, 1, 3. totall is 7 drams, which I note down underneath, because they

they are less then one ounce. Secondly, the ounces are 3, 7, 2, 12, 8, totall is 32 ounces, or 2 pound, because 16 ounces is one pound; which 2 I set under the place of pounds, with a light touch of the pen for to remember it the better, and place a cypher in the place of ounces. Thirdly, the pounds are, 2, 10, 1, 12, 10, 7, totall is 52 pound, which is one quarter of a hundred, and 24 pound, place 24 pound under the place of pounds, and put one quarter, as before, in the place of quarters of hundreds. Fourthly, 1, 3, 1, 2, 3 quarters, are 10 quarters, or 2 hundred and 2 quarters, or halfe a hundred; place 2 quarters in the place of quarters, and put over 2 into the place of hundreds for the 8 quarters. Then 2, 7, 2, 7, 3, 8, 7, makes 36 hundred, place 6 and carry 3, for the 30: then say, 3, 1, 2, 1, 3, 1, 2, totall is 13, place 3 there, and carry one for the 10, which one in minde, and 1, 1 makes 3, which set down, and the totall is, 336 hundred, 2 quarters, 24 pound, 0 ounces, 7 drams; and so the other example is in the same manner to be cast up, and so of all other.

The Table of Liquid Measures.

	Pints
One pound or pint, —	1
One quart —	2
One pottle —	4
One Gallon —	8
Eight Gallons, a Firkin of Ale, Sope, or Herring —	64
One Firkin of Beere —	72
One Firkin of Salmon, or Eeles —	85
Two Firkins, or one Kilderkin of Beer —	144
Two Kilderkins, or one Barrell —	288
One Tirce of wine —	336
63 Gallons one Hogshead of wine —	504
Two Hogsheads, or a Pipe or But —	1008
Two Pipes, Buts, or a Tun of wine —	2016

The Table of dry Measures.

	Pints.
One Pint —	1
One quart —	2
One Pottle —	4
One Gallon —	8
One Peck —	16
Four Pecks, one Bushel Land-measure —	64
Five Pecks one Water-bushel —	80
Eight Bushels one Quarter —	512
Four Quarters one Chaulder —	2048
Five Quarters one Wey —	2560

The

The Table of long Measures.

	Inch.
Three Barley Cornes in length, one	
Inch	1
One Foot	12
One Yard, or 3 Foot	36
Or 3 Foot 9 Inches, an English Ell	45
Or 6 Foot on Fadome	72
Or 5 yards and a half a Pole or Perch	198
Or one Perch in breadth, and 40 long,	
one Rood	198
Or 4 Perches breadth, and 40 long, an	
Acre of Land	792
160 Square Perches is one Acre	792
40 Roddes in length is one Furlong, and 8	
Furlongs is an English Mile.	

The Table of Time.

	Minute
One Minute	1
One Hou.e	60
One Day naturall, or 24 Hours	1440
One Week, or 7 Days	10080
One Month, or four Weekes, or 28	
Days	40320
13 Months one Day 6 Hours, or	
365 Days, one Year	523960

The

The Table of Motion.

360 Degrees,	21600 Minutes,	
129600 Seconds	—	12 signes.
30 Deg. 1800 min. 108000 sec.		1 Signe.
1 Deg. 60 min. 3600 sec.	—	1 Degree.
1 Min. is 60 seconds,	—	1 Minute.
1 Second	—	1 Second.
7776000 Thirds,	make the 12	
Signes	—	1 Third.
466560000 Fourths	make the	
12 Signes	—	1 Fourth.
27993600000 Fifths	is 12 signs-	1 Fifth.
1679616000000 Sixths	is 12	
Signs	—	1 Sixth.

The explanation of these Tables, and the examples following.

First, in the example of Acres, Roods and Perches, for 40 Perches put one Rood into the place of Roods, and for every four Roods one Acre.

Secondly, for every 4 quarters of Inch, take one Inch, and for every 12 Inches one foot, and for every three foot one yard.

Thirdly, for 16 pints take one peck, and for every four pecks one Bushel, into the place of Bushels.

Fourthly,

Fourthly, for every 8 pints of liquid measure, take one Gallon, and for every 63 Gallons one Hoghead.

Fifthly, in the example of time; for 60 minutes take one hour, and for 24 hours one day, and for 365 daies, one year.

Sixthly, for 4 nails take one quarter of a yard, and for 4 quarters one yard, &c

Lastly, in the example of motion, for 60 thirds, take one second, and for 60 seconds take one minute, and for 60 minutes take one degree, and for 30 degrees take on sign.

And this is the use of these Tables in Addition and Substraction; for looke what you carry over in Addition, that you must borrow in Substraction. I will here adde examples of every kind, leaving the Reader to exercise himselfe by the Rules before taught.

<i>Example.</i>					
<i>Acres.</i>	<i>Rood.</i>	<i>Per.</i>	<i>Feet.</i>	<i>Inch.</i>	<i>Quart</i>
127.	3.	2.	124.	7.	3
246.	1.	12.	246.	11.	4
17.	3.	22.	134.	7.	2
27.	1.	8.	120.	8.	0
37.	0.	17.	72.	10.	2
2	2		03	2	
456.	2	00	699.	9.	3

Bushell

Of Addition.

19

Bushel,	Pecks,	Pints.	Yard.	Quar.	Nail.
127,	3,	11	127,	2,	3
256,	1,	7	359,	1,	4
345,	0,	0	152,	3,	0
184,	2,	10	16,	0,	0
<u>1</u>	<u>1</u>		<u>1</u>	<u>1</u>	
913.	3.	12	656.	3.	3.

Years, daies, hours, min. seconds.

356,	245,	16,	35,	20
249,	100,	12,	30,	00
756,	12,	00,	10,	12
140,	27,	30,	25,	02
<u>1618,</u>	<u>00,</u>	<u>20,</u>	<u>00,</u>	<u>00</u>
I	3	I		

3120. 22. 07. 40. 34.

Signs, degrees, minutes, seconds, thirds.

11,	22,	32,	24,	18
8,	19,	17,	20,	12
10,	07,	00,	08,	15
2,	17,	35,	50,	59
<u>3,</u>	<u>29,</u>	<u>30,</u>	<u>12,</u>	<u>00</u>
3	I	I	I	

37. 05. 55. 55. 44.

The proof of Addition.

The proof of Addition is made by Substra-
ction;

ction, for if you subtract the numbers which you added, from the totall of the Addition, there will remain nothing if the work be truly done.

Example.

<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
378567.	19.	10.	1.
240023.	10.	2.	0.
854326.	07.	1.	0.
785634.	13.	3.	2.
320500.	00.	11.	1.
2.	2.		

Total. 2579052. 11. 4. 0.

First, adde together the greatest summes in value in the place of hundred thousands, which makes 23, which take from 25, and there will remain 2, then the figures in the fifth place, 26 taken from 27, there will remain 1. Thirdly, the figures in the place of thousands, makes 17, which taken from 19 leaves 2, then 19 in the place of hundreds taken from 20, leaves 1; and again, 13 in the place of tens from 15, leaves 2; and lastly, 20 in the place of units from 22 pound, leaves 2 pound: then 49 shillings from 2 pound 11 shillings, leaves 2 shillings:

lings : also 2 shillings 3 pence in the place of pence, from 2 shillings 4 pence, leaves 1: and last of all, 4 farthings from 1 peny, leaves nothing, which proves the work to be truly wrought.

		<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
<i>The Totall.</i>	2579052.	xx	4	0.	
	212122.	2.	x.	0.	

The second proof of Addition.

Cut off the uppermost numbers with a dash of the pen, and add the remainder into one total; and then substract that sum from the whole totall, and the remainder will be the numbers which you cut off, if the work be true, else not.

Example.

	378567,	19,	10,	1,	
	240023,	10,	2,	0,	
	854326,	7,	1,	0,	
	785634,	13,	3,	2,	
	320500,	00,	11,	1,	
<i>Total</i>	2579052,	11,	4,	0,	<i>of all</i>
<i>Subt.</i>	2200484,	11,	5,	3,	<i>the sum</i>
<i>The</i>	378567,	19,	10;	1	<i>proof</i>

And so much shall suffice to have spoken of Addition, and the proof thereof.

Questions

Questions of Addition.

What number is that, to the which if you do add 45, the totall will be 357.

Answer. Subtract 45 from 357, remains 312.

Example.

$$\begin{array}{r} 357 \\ 45 \\ \hline 312 \end{array}$$

What three numbers are those, to which if you adde 27, 36, and 45, their products shall be equall, and the sum arising shall be 120.

Proof.

$$\begin{array}{r|l} 120 & 120 \quad 120 \quad 93 \\ 27 & 36 \quad 45 \quad 27 \\ \hline 93 & 84 \quad 75 \quad 120 \end{array}$$

What number is that to the which if you do adde 354 pound, 7 shillings 9 pence, the totall will be 512 pound, 15 shillings, 0 penny? *Answer.* Subtract 354 pound 7 shillings 9 pence, from 512 pound, 15 shillings, 0 penny, and the remainder will be 15 pound 7 shillings 3 pence, which is the number that you do seek.

Example.

<i>Example.</i>	<i>l.</i>	<i>s.</i>	<i>d.</i>
	512	15	0.
	354	7	9
	158	7	3

CHAP. III.

Of Subtraction.

Subtraction is that of Arithmetick which serveth to deduct or take one sum or number from another, the less from the greater, & produce what there remains: As suppose there be delivered or received 6342 pounds, Sheep, Oxen, (or what you please to imagine) and have disposed of them 2131, how many will there remain? Place the greater number from which you would subtract, and then place the lesser number to be subtracted under it, drawing a line with your pen, as in this example.

$$\begin{array}{r} 6342 \\ 2131 \\ \hline \end{array}$$

Then take the first Figure towards the right in the number to be subtracted from the Figure over it, and place what remains under the line; that is, take 1 from 2, and there

there remains 1, which one place thus,

$$\begin{array}{r} 6342 \\ 2131 \\ \hline 1 \end{array}$$

Then take the next in the place of tenth, and place the remainder under the line even with the rest, that is, take 3 from 4, and the remainder is 1, which 1 place under the line thus,

$$\begin{array}{r} 6342 \\ 2131 \\ \hline 11 \end{array}$$

Then come to the third place, and take 1 from 3, and there remains 2, which place under the line even with the rest, thus,

$$\begin{array}{r} 6342 \\ 2131 \\ \hline 211 \end{array}$$

Then take the fourth from the fourth, which is 2 from 6, and there remains 4, which place under the line thus,

$$\begin{array}{r} 6342 \\ 2131 \\ \hline 4211 \end{array}$$

By which you may perceive that 2131, being taken from 6342, there remains 4211 the proof of Substraction is by Addition

tha

that is, adde what remains to the number substracted, and if they both make your first number, it is right; if not, it is wrong : as in the former example, adde 4211, the remain to 2131, they make 6342. Thus your first Number,

$$\begin{array}{r} 6342 \\ 2131 \\ \hline 4211 \\ \hline 6342 \end{array}$$

Another Example of subtraction, I would take 1648 from 2537. and know what remains, place them as in the former example, the greater number first, and the lesser under it : thus,

$$\begin{array}{r} 2537 \\ 1648 \\ \hline \end{array}$$

Then take the lower number from the upper and place the remainder under the line, that is, take 8 from 7 you cannot, therefore borrow ten from the place of tenth, which make 17. then take 8 from 17, and there remains 9. which 9 place thus,

$$\begin{array}{r} 2537 \\ 1648 \\ \hline \end{array}$$

9

C Observe

Observe that as in Addition for every ten you had in the first place, you were to adde one to the second place ; so on the contrary in Subtraction for every ten you want, in the first place, you are to take from the second ; so here the first you borrow from the second place, which is the figure of 3, there is but 2 remain ; then proceed to the second figure, and take 4 from 2, the which you cannot, therefore as in the former, borrow from the next, and take 4 from 12, and there remains 8, which 8 place thus,

$$2537$$

$$1648$$

$$89$$

Then take 6 from 4 that you cannot, but take 6 from 14 and there remains 8, which place under the line thus,

$$2537$$

$$1648$$

$$889$$

Then take 1 from 1, and there remains nothing, by which you may perceive that 1648 taken from 2537, there remains 889, the which you may prove by adding (as was directed in the former example.)

Of Subtraction.

27

$$\begin{array}{r} 2537 \\ 1648 \\ \hline 889 \\ \hline \end{array}$$

2537

Here follow divers Examples with their proofs.

A third Example.

$$\begin{array}{r} \text{Borrowed} \quad 678912 \\ \text{Paid} \quad \quad \quad 489345 \\ \hline \text{Remain} \quad \quad 189567 \\ \hline \text{Proof} \quad \quad \quad 678912 \end{array}$$

A fourth Example.

$$\begin{array}{r} \text{Borrowed} \quad 1040603090 \\ \text{Paid} \quad \quad \quad 10690842 \\ \hline \text{Remain} \quad \quad 1029912248 \\ \hline \text{Proof} \quad \quad \quad 1040603090 \end{array}$$

A fifth Example.

$$\begin{array}{r} \text{Delivered} \quad 1000000000 \\ \text{Received} \quad \quad 987654321 \\ \hline \text{Remain} \quad \quad \quad 012345679 \\ \hline \text{Proof} \quad \quad \quad 1000000000 \end{array}$$

For the subtracting of Money or Coin, of Weights, Time and Motion, observe the following Rules.

C 2

Place

Place your great number, from which the Substraction is to be made in the uppermost part, and the number to be subtracted, or deducted right underneath every figure under his like kinde, or denomination, *viz.* pounds under pounds, shillings under shillings, and pence under pence, &c. in this manner.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
<i>Lent</i>	7756.	13.	10.	1.
<i>paid</i>	3949.	17.	11.	2.
<hr/>				
<i>Rest.</i>	3806.	15.	10.	3.
<hr/>				
<i>Proof.</i>	7756.	13.	10.	1.

Then begin your subtraction at the left hand, at the smallest numbers; but if the lowest figure of the undermost numbers be the greatest, that it cannot be abated out of the number above it, then adde one of your next greater denomination, and make your subtraction from both, noting the remainder: as if you have 10 pence to take from 7 pence, add one shilling, or 12 pence, unto 7 pence, that maketh 19 pence; then take 10 pence from 19 pence, and there will remaine 9 pence, which note down under the 10 pence: and because you did borrow one shilling, therefore in the number of shillings you shall take away one more then it is, in the next

next place of shillings : and this rule is general in Coyn, Measure, Time, Motion, or any thing else whatsoever.

1 Example of Substraction of Coyn.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
<i>Lent</i>	789786.	17.	11.	3.
<i>Paid</i>	6,2583.	19.	10.	1.
<i>Rest.</i>	97202	18.	1.	2.
<i>Prob.</i>	789786.	17.	11.	3.

The Explanation of these Examples.

In the first example of Coyn, begin your Substraction at the right hand, saying, 1 farthing from 3 farthings, leaves 2 farthings, which note downe under the 1 farthing. Then 10 pence from 11 pence, leaves 1 penny. Thirdly, 19 shillings from 17 shillings you cannot have, therefore take one pound, or 20 shillings, and adde to 19 shillings, saying, 19 shillings from 37 shillings, rests 18 shillings, which note downe. Then 1 that you borrowed, and 3 pound, is 4 pound from 6 pound, leaves 2 pound to set downe under 3. Then 8 from 8 leaves nothing, place there a Cypher or 0 under 8. Then 5 from 7 rests 2, then 2 from 9 leaves 7, which also note again, 9 from 8 cannot be taken, then,

then make it 10 more, and say, 9 from 18 leaves 9, which set down: and last of all, 1 borrowed and 6 is 7, from 7 leaves nothing, and the work is ended, and the remainder will be 97202 pound, 18 shillings 1 peny 2 farthings, as appeareth in the example before going.

2 Example of Weights.

	C.	q.	li.	oun.
<i>Lent</i>	127	3.	27:	10.
<i>Paid</i>	38.	2.	24:	15.
<i>Rest</i>	89.	1.	2.	11.
<i>Proof.</i>	127.	3.	27.	10.

The exposition of the second Example.

First, take 15 ounces from 10, which cannot be, then adde 1 pound, or 16 ounces to 10, makes 26, then say, 15 from 26 leaves 11 ounces, which note down: then 1 borrowed, and 24 is 25 from 27 pound leaves 2 pound remaining: then 2 quarters from 3 quarters leaves 1 quarter remaining; then 8 from 7 cannot be, then take 8 from 17, rest 9, which note down: then 1 borrowed, and 3 makes 4, from 12 rests 8, and the work is done,

done, and the remain is 89 hundred 1 quarter 2 pound, 11 ounces.

3. *Example of Time.*

	<i>Years.</i>	<i>Days.</i>	<i>Hours.</i>	<i>Minutes.</i>
<i>Tot.</i>	1618.	340.	20.	56
<i>Ded.</i>	1581.	122.	15.	59.
<hr/>				
<i>Rest</i>	0037.	218.	04.	57.
<hr/>				
<i>Proof</i>	1618.	340.	20.	56.

4. *Example of Motion.*

	<i>Sig.</i>	<i>Deg.</i>	<i>Min.</i>	<i>Sec.</i>	<i>Thirds.</i>
<i>Tot.</i>	11.	22.	36.	52.	40.
<i>Subt.</i>	7.	29.	51.	42.	56.
<hr/>					
<i>Rest</i>	3.	22.	45.	09.	44.
<hr/>					
<i>Proof</i>	11.	22.	36.	52.	40.

3. *Example.*

First take 59 minutes from 56 minutes cannot be, but then take 59 minutes from 60 minutes, or 1 hour, and there will remain 1 minute; which adde to 56 minutes, and

that will make 57 minutes, which note downe in the place of minutes: then 1 borrowed and 15 houres makes 16 houres, which taken from 20 houres leaves 4, which note under the 15, and then 2 daies from 0 cannot be, but 2 from 10, and there will remain 8, which note down: then 1 borrowed and 2 makes 3, from 4 leaves 1; also 1 from 3 leaves 2: lastly, 1 from 8 leaves 7, and 8 from 11 leaves 3; then 1 borrowed and 15 makes 16, from 16 leaves nothing, and the remainder will be 37 years 218 dayes 4 hours 57 minutes; the like is done in the other example of Motion, and therefore here needless to be rehearsed.

To subſtract from a Unite.

Set downe with your pen a Unite in any place, adding Cyphers unto it, and the ſeveral numbers which you will ſubſtract from it of pounds, ſhillings and pence write underneath: then note what each ſeverall number of your loweſt numbers doth want of 9 unto the place of Unites, and ſet that right under for the remainder: and laſtly, note what your ſhillings and pence doth want of 20 ſhillings, and ſet that downe for your remainder, and the work is ended.

Example.

Example.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
<i>Lent</i>	1000000.	00.	00.
<i>Paid</i>	232864.	17.	03.
<hr/>			
<i>Rest</i>	767135.	2.	9.
<hr/>			
<i>Proof</i>	1000000.	00.	0.
<hr/>			

The proof of Subtraction.

The surest proof of Subtraction is made by Addition; for if you adde the numbers remaining unto the total of the numbers deducted, they will return your former sum, if the work be truly wrought, as will appear in the proof of all the several examples before going; and therefore here again in this place needless to be rehearsed. Only I will adde one for examples sake.

In the last example, the numbers which did remaine, were 767135 pound 2 shillings 9 pence, and the numbers deducted, 232864 pound 17 shillings 3 pence, these 2 numbers added together, ought to make a unite in the seventh place; wherefore I adde 9 pence to 3 pence, makes 1 shilling; and 1 shilling to 17 shillings, makes 18 shillings, and 2

C 5

shillings

shillings make 20 shillings, then 1 and 4 is 5, and 5 is 10. which is one in the next place, then 1 and 3 and 6 is 10. and 1. 1. 8. makes 10. and 1. 7. 2. makes 10. and 1. 6. 3. is 10. and lastly, 1. 7. 2 makes 10. or one unite.

CHAP. IV.

Of Multiplication.

Multiplication is that part of Arithmetick by which is multiplied one Number by another, to the end their product may be known. Multiplication is a speedy way of Addition, as to know what 3 times 252 is, or 8 times 9; it is not to put down 252 3 times, or 8 times 9 one under another, and so call them up, but to multiply 252 by 3, as shall be shewn hereafter.

In Multiplication there is three parts, the Multiplicand, the Multiplier, and the Product; the Multiplicand is the number given to be multiplied, the Multiplier is that number by which you multiply, the Product is that which is produced by the multiplication;

plication; so if you multiply 5 by 4 the Product will be 20; for 4 times 5 is 20. here the 5 is the Multiplicand, 4 the Multiplier, and 20 the Product.

Multiplication is either single or compound, single Multiplication is when the Multiplicand and Multiplier consist of one single figure.

To know the Multiplication of any single figure, here followeth a perfect Table.

The Table of Multiplication.

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30	36	42	48	54
7	14	21	28	35	42	49	56	63
8	16	24	32	40	48	56	64	72
9	18	27	36	45	54	63	72	81

The use of this Table is, if you desire to know what the product of any number under 9 being multiplied by any single figure, first find one of your number in the uppermost

uppermost row, and the other in the row downward towards your left hand, and in the Angle where the 2 figures meet you have the Product, as for example, 8 multiplied by 6 you will find to be 48. 6 by 6 is 36, 6 by 7 is 42, and so of the rest; it will be very necessary for those that desire to be expert in Arithmetick to learne this Table by heart, which may easily be done, most of it being natural to the meanest capacity, if they can but read; as who knows not that 3 times 3 is 9, 3 times 4 is 12, 4 times 5 20, 4 times 6, 24, and the like?

In compounded Multiplication, that is, when you would multiply any number consisting of many figures, as if you multiply 3421 by 2, that is, how much is 2 times 3421, place your Multiplicand first, and then place your Multiplier under it, drawing a line under them with your pen thus,

$$3421$$

$$2$$

Then proceed to the Multiplication, and say 2 times one is 2, which 2 place under thus,

$$3421$$

$$2$$

Them

Then multiply the second figure, say 2 times 2 is 4, which place under thus,

$$\begin{array}{r} 342\text{I} \\ 2 \\ \hline \end{array}$$

Then multiply the third, which is 4, say 2 times 4 is 8, which place under the line thus,

$$\begin{array}{r} 42 \\ 342\text{I} \\ 2 \\ \hline \end{array}$$

Then multiply the last, 2 times 3 is 6, which 6 place under thus,

$$\begin{array}{r} 842 \\ 342\text{I} \\ 2 \\ \hline \end{array}$$

By which you may perceive that 342I multiplied by 2, makes the product to be 6842.

The second Example in which the multiplier consists of two figures, if you multiply 4562, by 24, that is, how much is 24 times 4562, place them as formerly directed, your greater number first, and the lesser underneath, drawing a line under them thus,

$$\begin{array}{r} 4562 \\ 24 \\ \hline \hline \end{array}$$

And

And multiply the upper number by the first figure of the Multiplier, say 4 times 2 is 8, set 8 under the line and multiply the next, 4 times 6 is 24, set down 4 and carry 2 to be added to the next, say 4 times 5 is 20, and 2 is 22, set down 2 and carry 2 to be added to the next, then say 4 times 4 is 16, and 2 is 18, which 18 put in its proper place, and cancell the figure of 4, then it stands thus,

4562

24

 18248

Then multiply the Multiplicand, or the upper number by the second figure of the Multiplier being 2, say 2 times 2 is 4, and 2 times 6 is 12, set down 2 and carry 1 to the next, 2 times 5 is 10, and 1 is 11, set down 1 and carry 1 to the next, 2 times 4 is 8 and 1 is 9, set down 9; the which being done, cancel the second figure, and it stands thus ;

4562

24

 18248

9124

Then add your two numbers together, it will be the Product which is 109488 being the Product of 4562 multiplied by 24.

Multiplicand

Multiplication.

59

Multiplicand 4562*Multiplicator* 29

Product 18248

9124

Totalis 169488

The third Example, where the Multiplier consists of three figures.

87968 *Multiplicand.*987 *Multiplier.*

First begin (as hath been formerly shewed) your multiplication at the right hand, saying 7 times 8 makes 56, place 6 under the 7, and keep 5 in mind to be added to the Product of the multiplication of 7 by 6, saying 7 by 6 makes 42, and 5 in mind is 47; set 7 down under the 6, and keep 4 in mind: then 7 by 9 is 63, and 4 makes 67; set 7 down and keep 6 in mind: then 7 by 7 is 49, and 6 is 55, place 5 and keep 5 in mind: lastly, 7 by 8 is 56, and 5 is 61, which set down the 1 first, and the 6 one place more towards the right hand; and so the multiplication by the first figure 7 is done, then cancel the 7 of your Multiplier, and your work will stand as in this example.

87968

Multiplication.

$$\begin{array}{r} 87968 \\ 987 \\ \hline \end{array}$$

615776

Secondly, begin with 8, the second figure of your multiplier, saying 8 times 8 is 64, place the 4 under the said 8, and keep the 6 in mind: then 8 by 6 is 48, and 6 makes 54: set down 4 in the next place, and keep 5 in mind: then 8 by 9 is 72, and 5 makes 77; set down 7, and keep 7 in mind: then 8 by 7 is 56, and 7 makes 63; set downe 3, and keep 6. Lastly, 8 by 8 is 64, and 6 makes 70, set the 0 first, and the 7 one place more towards the left hand, and cancell the 8 of your multiplier, and the worke will stand thus,

$$\begin{array}{r} 87968 \\ 987 \\ \hline \end{array}$$

615776

703744

Thirdly, begin with 9, the last figure of your multiplier, saying 9 by 8 is 72, place the 2 under the said 9, and keep 7: then 9 by 6 is 54, and 7 is 61; place 1, and keep 6: then 9 by 9 is 81, and 6 is 87; place 7, and keep 8: then 9 by 7 is 62, and 8 is 71: place 1, and keep 7: last of all, 9 by 8 is 72, and 7

is 79, place the 9 first, and the 7 one place more towards the right hand, and the whole work is ended, then gather the totall by Addition.

87968 *Multiplicand.*

987 *Multiplier.*

615776

703744

791712

86824416

Product.

The fourth Example with Cyphers.

703286501 *Multiplicand.*

32057 *Multiplier.*

492305507

3516432505

14065730020

2109859503

22545255362557 *Product.*

The Exposition of this Example.

First, 7 by 1 is 7, which note down : then 7 by 0 is nothing set down a 0 in that place: and next 7 by 5 is 35 set 5 and carry 3; then 7 by 6 is 42, and 3 is 45, place 5, and carry 4; then 7 by 8 is 56, and 4 is 60, set down a 0, and carry 6 again : 7 by 2 is 14, and 6 makes

makes 20, set down a 0 and carry 2 : then 7 by 3 is 21, and 2 makes 23 ; place 3 and carry 2 : then 7 by 0 is 0 , leave the 2 in that place : then lastly, 7 by 7 is 49, being the last number, set down all the 9 under 7, and the 4 one place more to the left hand, and the work will then stand thus.

$$\begin{array}{r} 703286501 \\ 32057 \\ \hline 4923005507 \end{array}$$

Secondly, cancell 7, and then say, 5 by 1 makes 5, place that 5 under the 0 ; and then 5 by 0 is 0, place a 0 under the 5 in the next place ; and then 5 by 5 is 25, set down 5 and carry 2 : then 5 by 6 is 30, and 2 makes 32, set down 2 and carry 3 : then 5 by 8 is 40, and 3 makes 43, place 3 and carry 4 : also 5 by 2 is 10, and 4 makes 14. set down 4. and carry 1 : then 5 by 3 is 15, and 1 makes 16. set down 6 and carry 1 : then 5 by 0 is 0, set down the 1 there : last of all, 5 by 7 is 35. set them all down , and the work will then stand thus,

$$\begin{array}{r} 703286501 \\ 32057 \\ \hline 4923005507 \\ 3516432505 \end{array}$$

Thirdly, cancell the 5, and then say, 0 by

1 is 0, place 0 under the 0 of your Multiplier; and then proceed to the next figure of your Multiplier, which is 2, saying 2 by 1 is 2, place the 2 under the said 2 of your Multiplier: then 2 by 0 is 0, which set down: then 2 by 5 makes 10; set down a 0 and carry 1: then 2 by 6 is 12, and 1 is 13, set down 3 and carry 1: also 2 by 8 is 16, and 1 is 17, set down 7 and carry 1: also 2 by 2 is 4, and 1 makes 5, which set down: again, 2 by 3 is 6, which set down: lastly, 2 by 7 is 14, which set down and the work will stand as in this example.

703286501

32057

4623005507

3516432505

14065730020

Fourthly, cancell the 2 and say, 3 by 1 is 3, which place right under the said 3: then 3 by 0 is 0, and work in all respects as before, and the work being ended, will stand thus.

Multiplicand

703286501

Multiplier

32057

4923005507

3516432505

14065730020

2109859503

Product

22545255362557

I

I will here adde some few examples to be wrought by the pen, without any troubling of the memory with bearing ought in mind.

1. *Example.*87968 *Multiplicand.*987 *Multiplier.*

$$\begin{array}{r}
 46456 \\
 56932 \\
 57464 \\
 64628 \\
 68572 \\
 72314 \\
 \hline
 86824416
 \end{array}$$

Product.

2. *Example.*79648039 *Multiplicand.*8976 *Multiplier.*

$$\begin{array}{r}
 53240154 \\
 42464808 \\
 64250263 \\
 49328601 \\
 85370281 \\
 63146207 \\
 74360272 \\
 56282404 \\
 \hline
 714920798.064
 \end{array}$$

Product.

The explanation of the work by pen, without charging the Memory.

The first Example. 87968

987

First, I multiply all the figures of my Multiplicand by 7, the lowest figure of my Multiplier, saying, 7 by 8 is 56, put 6 under the 7, and 5 under the 8: then 7 by 6 is 42, leave the 2 under 5 last placed, and set the 4 one place more towards the left hand under the 9: then 7 by 9 is 63, leave 3 under the 4 last placed, and set 6 one place more to the left hand under 7: then 7 by 7 is 49, leave 9 under the 6 last placed, and the 4 set one place more to the left hand under the 8: lastly, 7 by 8 makes 56, leave 6 under the 4, and place 5 one space more toward the left hand, as before, then cancel 7 of your Multiplier, and the multiplication by the first figure is ended, and the work will stand thus,

Example.

87968

987

—————

46456

56932

Then for the second work, say 8 by 8 is 60, place 4 under the said 8, and put 6 under the next figure 3: then 8 by 6 makes 48, leave 8 under 6, and put 4 under the next 9: and

and so working in all respects as at the first, and your second work will stand thus, as in this example.

$$\begin{array}{r}
 87968 \\
 987 \\
 \hline
 46456 \\
 56932 \\
 57464 \\
 64628
 \end{array}$$

Lastly, cancell 8 your Multiplier, and then multiply by 9 (as is before taught) placing the first figure of your Product under the figure multiplying, and the work being ended, it will stand thus: and lastly, gathering the totall by addition, it is 86824416; as in this example.

$$\begin{array}{r}
 87968 \\
 987 \\
 \hline
 46456 \\
 56932 \\
 57464 \\
 64628 \\
 68572 \\
 72314 \\
 \hline
 \text{Product} \quad 86824416
 \end{array}$$

There is no difficulty in this kind of working, but onely when there falls a 0 in the
Mul-

Multiplicand, or Multiplier ; for if there be a Cypher, then you must fill up the places as you work, either with pricks or Cyphers, as if you had figures to set in their places, and the rest of your work is as before is taught in the third example ; but I will here adde one example, having all the difficulties that may happen for the better understanding hereof.

Example.

$$\begin{array}{r}
 70921034 \\
 1293 \\
 \hline
 02000012 \\
 21076309 \\
 08100236 \\
 63018907 \\
 01000008 \\
 14084206 \\
 70921034 \\
 \hline
 \text{Product} \quad 91700896962
 \end{array}$$

Example.

*Multiplication.**Example.*

$$\begin{array}{r} 80073902147368 \\ 179852 \end{array}$$

$$\begin{array}{r} 00101000010116 \\ 16004680428462 \\ 000314010231340 \\ 40005550050550 \\ 00527010352464 \\ 64006420682648 \\ 00028010362572 \\ 72003710896374 \\ 00426010242456 \\ 56009130478912 \\ 80073902147368 \\ \hline 14401451449008429536 \end{array}$$

*How to multiply and to bring the Product
in the last line.*

Place your numbers right one under the other, as in the common way; then make a right line somewhat distant from the first numbers with your pen, as in the example following,

$$\begin{array}{r} 87968 \\ 987 \\ 5648 \end{array}$$

$$615776$$

Then begin and say, 7 by 8 is 56, place
the

the 6 under the line under the 7, and the 5 above the line in a smaller figure in the next place towards the left hand: then 7 by 6 is 42, and the 5 above the line makes 47, leave 7 under the 8, and set the 4 again above the line: then 7 by 9 is 63, and the 4 above the line makes 67; place 7 there, and set the 6 in the next place above the line, then 7 by 7 is 49, and 6 above the line makes 55, leave 5 there, and put 5 again over the line: lastly, 7 by 8 makes 56, and the 5 last placed makes 61, place that whole sum under the line, and that work will stand as above in the example. Secondly, draw a line again a little distant, as before from the last product, as in the example following.

Example.

$$\begin{array}{r}
 87968 \\
 987 \\
 5645 \\
 \hline
 61577 \overline{) 6} \\
 6867 \overline{) } \\
 \hline
 765321
 \end{array}$$

Then say 8 by 8 is 64, and 7 makes 71, place 1 under the 7, and set 7 above the line: then 8 by 6 is 48, and the two sevens between lines makes 62; place 2 under the 7, and set 6 again over the line: then 8 by 9

D

is

is 72, and 6 makes 78, and 5 makes 83, place 3 under the line and 8 above the line: then 8 by 7 is 56, and 8 makes 64, and 1 makes 65, place 5 under the line, and set 6 above: lastly, 8 by 8 is 64, and 6 makes 70, and 6 makes 76, place them both down; and the work will stand as above in the example.

Thirdly, draw a line again, as before, a little distant from the last product, as in this example

<i>Example.</i>	87968
	987
	5645
	61577 6
	68670
	76532 1
	7967
	86824416 <i>Product.</i>

Thirdly, say 9 by 8 is 72, and 2 makes 74, place 4 and put 7 over the line: then 9 by 6 is 54, and 10 makes 64, place 4 under the line, and put 6 above: then 9 by 9 is 81, and 11 above makes 92, leave 2 under the line, and 9 over the line: then 9 by 8 is 63, and 15 makes 78, leave 8 under the line, and 7 above: lastly 9 by 8 is 72, and 14 makes 86,
place

place them both under the line, and then bring down the two figures which are cut off by two right down lines, which are 1 and 6, and the work is ended, and the work will stand as appeareth in the example above, and the totall Product is in the last line, 86824416; and this doth not charge the memory, for all the figures are set down in view, and to be seen at the first sight, and this is the second kind of Multiplication without charging the memory.

79648039

8876

5324025

477888334

76461200

605325096

86470390

777374800

85470379

714921798064

CHAP. V.

Of Division.

Division is that by which we know how many times one Number is contained in another, to the end we may find

the Quotient as in Multiplication. So in Division are three parts: the Dividend, the Divisor and the Quotient; the Dividend is the number given to be divided, the Divisor is the number by which we divide, the Quotient is the number produced by the Division; if 24 were given to be divided by 6, the number produced would be 4, because 4 times 6 is found in 24: here 24 is the Dividend, 6 the Divisor, and 4 the Quotient. As Subtraction is but the undoing of that which is done by Addition; so Division is the undoing of what is done by Multiplication; for if you multiply 6 by 4, the product will be 24: so if you divide 24 by 6, 4 will be the quotient; for the working of Division, you must place your Dividend or number to be divided first, then under it place your Divisor or number by which you are to divide, as suppose you would divide 646 into two parts, set your number thus,

Dividend 646 (*Quotient*
Divisor 2

First you must seek how many times 2 you have in 6, you will find 3 times, which 3 place at the right hand of the distinction in a line with the dividend, and then with your pen cancell your 2 and 6 thus,

646 (3
 x

Then set the Divisor under the next figure of the Dividend toward the right hand thus,

$$\begin{array}{r} 646 \quad (3 \\ 22 \\ \hline \end{array}$$

And seek how many times you have 2 in 4, which is 2 times, that you must place on the right hand of the quotient of 6, and cancell your 2 and 4, then your work will stand thus,

$$\begin{array}{r} 646 \quad (32 \\ 22 \\ \hline \end{array}$$

Then remove your Divisor to the next figure of the Dividend under 6 thus,

$$\begin{array}{r} 646 \quad (32 \\ 222 \\ \hline \end{array}$$

And seek how many times 2 there is in 6, which is 3; the 3 you must place at the right hand of the quotient, and cancell your 2 and 6, as here you see,

$$\begin{array}{r} 646 \quad (323 \\ 222 \\ \hline \end{array}$$

So you will find that there is 2 times 323 in 646. The like may be done in the division of other numbers. Another example of division with one figure.

I would divide 65490 pound amongst 5 men ; place your numbers thus,

Example.

Quotient.

Divident. 65490 (

Divisor. 5

First, I seek how oft 5 is in 6, this I may have but once ; then put 1 in the quotient beyond the crooked line, and take 5 out of 6, and there will rest 1, set that over 6, and then remove your divisor one place more to the right hand, and then seek you how many times 5 may be had in 15, and the answer is, thrice ; therefore place 3 in the quotient, and by it multiply your divisor 5, makes 15, which taken out of 15 leaves nothing, remove your divisor, and seek how oft you may have 5 in the 4 over it, but you cannot have it once ; wherefore put a 0 in the quotient, and remove your divisor, and seek how many times you may have 5 in the figures over and behind it, which are 49, and you may have it nine times, put 9 in the quotient, and by it multiply your divisor 5, makes 45, which taken from 49 leaves 4, which place above the 9. And lastly, remove again your divisor 5 under the 0, and seek how many times

times 5 is in 40, and you fhall find it 8 times, place 8 in the quotient, and by it multiply 5, makes 40, which taken from 40 leaves nothing remaining, and the work is ended, and will ftand thus, as in the example, and I find if I divide 65490 pound amongst 5 men, every man fhall have for his part 13098.

$$\begin{array}{r} \times \quad 4 \\ 65490 \quad (13098 \text{ quotient.} \\ 55055 \end{array}$$

Another example with one figure, fup-
pofe there is 398 pound to be divided equal-
ly among 6 men, how much will one part
be? Place firft your dividend, and in regard
you cannot take 6 out of 3, you muft fet
your divifor under the fecond figure, that is,
under 9 thus,

$$\begin{array}{r} 398 \quad (\\ 6 \end{array}$$

And feek how many times 6 you have in
39. 6 times 6. is 36, take 36 from 39, there
remains 3, place the 3 over the 9, and the
6 in the quotient, and cancell the 39 and the
6 thus,

$$\begin{array}{r} 3 \\ 398 \quad (6 \\ 6 \end{array}$$

Then remove your Divifor to the next
place under 8, and feek how many times 6
D: 4 you

you have in 38, you will find 6 times, and 2 over, place the 2 over the 8, and the 6 in the quotient, and cancell the 38 and 6 thus,

$$\begin{array}{r} 3 \overline{) 38} \quad 6 \\ \underline{18} \\ 20 \end{array}$$

So there will be 66 pounds to each man and two pounds over, that also divided into 6 parts, is 6 shillings 8 pence, in all 66 pound 6 shillings 8 pence. To prove it, multiply the quotient by the Divisor; add the two pound over it will make your dividend, that is 6 times 6 is 36 and 2 is 38, and 6 times 6 is 36 and 3 is 39.

And this is the order of Division for one figure : but if your Divisor do consist of more figures then one, then you must take the first figure of your divisor no oftner out of the Dividend, then you can also take every severall figure of your Divisor, out of the same figures of the Dividend standing above them : as for example:

If you would divide 86824416 by 987, which was one of the products of the multiplications in the rules before going, for a triall of your former work, then place your numbers as in the example following.

Example.

Example.

86824416 (8

987

Then I seek how oft I may have 9 in 86; I find I may have it 9 times; but if I consider the next figure 8 of my Divisor, I cannot have also 9 times 8 out of the numbers remaining; if I take 9 times 9 which is 81, out of 86, there wil remain but 5 : and then 9 times 8, the next figure of my Divisor, makes 72, which cannot be taken out of 58 which will remain : therefore I place 8 in the quotient, and by that I multiply all the figures of my Divisor, 987 makes 7899, which taken from 8682, leaves 786 above them : and the work will stand thus.

786

86824416 (8

987

7899

Secondly, I remove my Divisor 987 one place nearer the right hand, and then I seek how oft I may have 9 in 78, which I see I can have but 7 times, so I put 7 in the quotient, and by that 7 I multiply my Divisor 987, makes 6909, which taken from 7864, the numbers above them there will remain 955, and the work will stand thus,

D 5

Example.

Example

$$\begin{array}{r}
 95 \\
 7865 \\
 86824416 \text{ (87} \\
 9877 \\
 78969 \\
 698 \\
 90
 \end{array}$$

Thirdly, again I remove my divisor 987 one place neerer the right hand, and seek how many times I may have 9 in 95, and I find I may have it 9 times, which 9 I set into the quotient, and by it multiply 987 makes 8883, which taken from 9554 leaves 671; and the work will stand thus,

Example.

$$\begin{array}{r}
 67 \\
 987 \\
 7868x \\
 86824416 \text{ (872} \\
 98777 \\
 789692 \\
 898 \\
 88
 \end{array}$$

Fourthly, I remove my Divisor again, and seek how oft I may have 9 in 67, and I see I can have it but 6 times, then I put 6 in the quotient, and by it multiply 987, makes 5922, which taken from 6711 leaves 789, and the work will stand as in the example following.

Example

Example.

$$\begin{array}{r}
 67 \\
 9558 \\
 786519 \\
 86824416 \quad (8796 \\
 987777 \\
 7896932 \\
 8988 \\
 892 \\
 59
 \end{array}$$

Lastly, I remove my Divisor again, and seek how oft I may have 9 in 78, and I find I may have it 8 times, which I put into the quotient, and by it I multiply my Divisor, 987 makes 7896, equall unto the numbers above; and so being taken away, leaves nothing remaining, and proves the multiplication to be truly wrought, as appeareth in the the example following.

Example.

$$\begin{array}{r}
 67 \\
 9558 \\
 786519 \\
 86824416 \quad (87968 \\
 9877777 \\
 78969327 \\
 898886 \\
 8929 \\
 597 \\
 78
 \end{array}$$

The third example of Division.

The second kind of Division is this : first, place your Dividend and Divisor as in the former Examples, and then having found out the figure of your quotient : begin with the least figure of your Divisor towards the right hand first, and multiply that by the figure of the quotient found, and then subtract the sum of the multiplication of that figure from the figure above the same, if it exceed not 9 ; but if the product be above 9, then for every ten bear one in mind to be added to the product of the multiplication of the second figure of your Divisor by the quotient ; and so in all respects work for every other figure, and you shall need make no more figures above your Dividend then necessity shal require, As for example.

I would divide the product of the Multiplication in the former Chapter of 79648039 by 8976, which was found to be as followeth, viz. 714920798064 by 8976 : first I place my Dividend and Divisor as followeth.

	<i>Quotient</i>
<i>Dividend.</i>	714920798064 (7
<i>Divisor.</i>	8976

Then first I seek how often I may have 8 in 71, I find by triall I can have it but 7 times :

times : then having placed 7 in the quotient, I first multiply 6, the least or smallest figure in value by 7, makes 42 : then I say 42 from 42 rests 0, and carry 4 for the 40 in mind : then I cancell the 2 over the 6, and place a 0 in the room over it. Secondly I say, 7 by 7 is 49, and 4 in mind makes 53, from 59 leaves 6 and carry 5; cancell the 9 and place 6 over it. Thirdly, 7 by 9 is 63, and 5 in mind is 68, from 74 leaves 6, and carry 7, cancell the 4 and place 6 above it : also 7 by 8 is 56, and 7 makes 63, which taken from 71 leaves 8 remaining, which 8 place over the 1, and cancell the 71, and the first work will stand thus,

8660.

74920798064 (7

8976

Secondly, I remove my Divisor 8976, and seek how many times I may have 8 in 86, I find 9 times : then I multiply 6 by 9 placed in the quotient, makes 54, which taken from 60, leaves 6 : place 6 above the first 0 and carry 6 for the 60: then say 9 by 7 is 63, and 6 in mind makes 69, from 70 leaves 1, and carry 7 in mind, cancell the 0 over the 7, and place the 1 over the 0. Again 9 by 9 is 81, and 7 in mind is 88, which taken from 96 leaves 8 to be placed above the first

6,

6, and carry 9 in mind : lastly 9 by 8 is 72, and 9 makes 81, which taken from 86, leaves 5 to be placed above the 6, and the work will stand as followeth.

Example

$$\begin{array}{r}
 581 \\
 86606 \\
 714920798064 \quad (79 \\
 89760 \\
 897
 \end{array}$$

Thirdly, again I remove my Divisor, and seek how many times 8 is in 58, and I find I can have it but 6 times, which I place in the quotient : then I say, 6 by 6 makes 36, from 37 leaves 1 above 7, and carry 3 : then 6 by 7 is 42, and 3 is 45, from 46 leaves 1 above the 6, and carry 4 : Again, 6 by 9 is 54, and 4 makes 58, from 61 leaves 3. above the 1, and carry 6. Lastly, 6 by 8 is 48, and 6 makes 54, from 58 leaves 4, and the work stands thus, as in the example,

$$\begin{array}{r}
 43 \\
 5811 \\
 866061 \\
 714920798064 \quad (769 \\
 897666 \\
 8977 \\
 89
 \end{array}$$

Fourthly, I remove my Divisor, and seek how oft I may have 8 in 43, and I find but 4 times

4 times, I place 4 in the quotient. Then 4 by 6 makes 24, from 29 leaves 5, and carry 2, set 5 over the 9; then 4 by 7 is 28, and 2 makes 30, from 31 leaves 1, and carry 3. Again, 4 by 9 is 36, and 3 makes 39, from 41 leaves 2 and carry 4. Lastly, 4 by 8 is 32, and 4 is 36, from 43 leaves 7, and the work will then stand thus,

Example

72

~~431~~

~~5821~~

~~8660625~~

714920798064 (7964

~~8970666~~

~~89777~~

~~899~~

8

Fifthly, I remove my Divisor, and seek how oft I may have 8 in 72: I find 8 times, which placed in the quotient, I multiply 6 by 8 makes 48, from 48 leaves 0, and carry 4: then 8 by 7 makes 56, and 4 is 60, from 65 leaves 5, and carry 6: then 8 by 9 is 72, and 6 makes 78, from 81 leaves 3, and carry 8: then 8 by 8 makes 64, and 8 is 72, from 72 leaves 0 remaining, and the work will stand thus.

Example.

Division.

Example.

$$\begin{array}{r}
 7 \\
 4323 \\
 58225 \\
 8666250 \\
 724820788064 \quad (79648 \\
 89766666 \\
 897777 \\
 8999 \\
 88
 \end{array}$$

Sixthly, I remove my Divisor, and seek how oft I may have 8 in 3, which I find not once; I place a 0 in the quotient, and remove my Divisor one place more, and seek how many times 8 is in 35: I finde I can have it but 3 times; I place 4 in the quotient beyond the cypher last placed; and say, 3 by 6 is 18, from 26 rests 8, & carry 2: then 3 by 7 is 21, and 2 is 23, from 30 leaves 7, and carry 3: again 3 by 9 is 27, and 3 is 30 from 30 leaves a 0, and carry 3: also 3 by 8 is 24, and 3 is 27, from 35 leaves 8, and the work will stand thus.

Example.

Example.

$$\begin{array}{r}
 7 \\
 43238 \\
 53111507 \\
 8660615078 \\
 714920798064 \quad (7964803 \\
 8976666666 \\
 89777777 \\
 899999 \\
 8888
 \end{array}$$

Lastly, I remove my Divisor, and seek how oft I may have 8 in 80; I find 9 times, I place 9 in the quotient, and say, 9 by 6 is 54, from 54, leaves 0, and carry 5; then 9 by 7 is 63, and 5 is 68, from 68 leaves 0, and carry 6: then 9 by 9 is 81, and 6 is 87, from 87 leaves 0 and carry 8: last of all, 9 by 8 is 72, and 8 makes 80; from 80 there will remain nothing but cyphers, and the work is quite ended, and will stand as in the example following.

Example.

$$\begin{array}{r}
 7 \\
 43238 \\
 53111507 \\
 8660615078 \\
 714920798064 \quad (796489039 \\
 8676666666 \\
 89777777 \\
 899999 \\
 8888
 \end{array}$$

The

The fourth and last kind of Division, is the most absolute, speedy, & easie, not charging the memory at all with keeping any numbers in mind; and also the prooffe of your work is made by Addition, and not by multiplication, as hath heretofore been commonly used, as shall appear by examples following.

The third work.

First, place your Dividend between two parallel lines, and your quotient at the right side of your Dividend, behind a crooked line, as before; then place your Divisor next to the left hand of your Dividend, behind a perpendicular line: and lastly, mark how many figures your Divisor hath, and in the room of those Figures place ciphers under the Figures of your Dividend, so many as your Divisor hath Figures, as in the last example: which I will again repeat in this place, and work it by this kind of Division, making the proof of the work by Addition of the same Figures.

Example.

<i>Divisor.</i>	<i>Dividend.</i>	<i>Quotient.</i>
8976.	1714920798064 (
	0000	

First, I point to the first Cipher towards the

the left hand, & seek how oft I may have 8, the greatest figure in value of my Dividend having respect to the other figures of my Divisor, to take them also as often out of the figures above, and I find I can have it but 7 times, which 7 I place in the Quotient, and by that 7 I multiply my Divisor 8976, saying first, 7 by 6 is 42, place the 2 under the lowest cypher towards the right hand, and carry 4 : then 7 by 7 is 49, and 4 is 53: set 3 under the next place to the left hand, and carry 5 : then 7 by 9 is 63, and 5 is 68, place the 8 in the next place, and carry 6. Lastly 7 by 8 is 56, and 6 in mind makes 62, which place down in their places, and the totall is 62832, to be subtracted from 71492, and there will remain 860, and the work will stand thus.

Example.

8660

$$\begin{array}{r}
 8976 \overline{) 714920798064} \quad (7 \\
 \underline{62832} \\
 8660
 \end{array}$$

Secondly, I cancell the first cypher to the left hand, and place one cypher more towards the right hand, under the 0, and then I point again to the first cypher, and see how oft I may have 8 in 86; I find 9 times, and placing

placing 9 in the quotient, by it I multiply 8976 my Divisor, placing the lowest figure in value under the lowest cypher to the right hand, and the rest in order, and I find the product to be 80784, which taken from 86600, leaves 5816 remaining, and then your work will stand as in this

Example.

581

86606

$$\begin{array}{r} 8976 \overline{) 724920798064} \quad (79 \\ \underline{00000} \end{array}$$

628324

80781

Thirdly, I cancell my Divisor, or one Cypher, and place one Cypher more under 7, and then seek how oft I may have 8 in 58, which I find 6 times, and by it I multiply my Divisor 8976 makes 53856, which taken from 58167, leaves 4311, and the work will stand as followeth.

Example.

43

5811

866061

$$\begin{array}{r} 8976 \overline{) 724920798064} \quad (796 \\ \underline{000000} \end{array}$$

6283246

80785

538

Fourthly,

Fourthly, I cancell one Cypher, and place a Cypher under 9, and then seek how oft I may have 8 in 43, which I find but 4 times, which I place in the quotient, and by it I multiply my Divisor 8976, makes 35904, which taken from 43119, leaves 7215.

Example.

7

432

58221

8660625

8976 | 724027098064 (7964

| 0000000

62832464

807850

5389

35

Fifthly, I cancell one cypher, and place a cypher under 8, and seek how oft 8 is in 72; I find 8 times, which placed in the quotient, I multiply my Divisor 8976 by it makes 71808, which taken from 72158, leaves 350, and the work stands as in the example following.

Example.

Example.

$$\begin{array}{r}
 70 \\
 8976 \overline{) 724920798064} \quad (796480 \\
 \underline{80606190} \\
 628324648 \\
 8078500 \\
 53898 \\
 351 \\
 7
 \end{array}$$

Sixthly, I cancell one cypher, and place another under the 0, and seeing I find I cannot have 8 in 3 ; therefore I place a 0 in the quotient. Seventhly, I cancell one cypher, and place one other under the 6, and seek how oft I may have 8 in 35 ; I find but 3 times, and placing 3 in the quotient, by it I multiply 8976, makes 26928, which taken from 35006, leaves remaining 8078.

Lastly, I cancell the next cypher, and do place another under the last figure of my Dividend 4, and seek how oft I may have 8 in 80, I find 9 times, and then placing 9 in the quotient, I multiply my Divisor 8976, and the quotient is 80784, equall unto the numbers above ; and so being subtracted from the numbers above, leave 0 remaining, and

and the work is ended, and will stand thus.

Example.

70

43238

5811150

8660615070

29761

714920798064179648039

00000000000

628324648.84

8078500078

5389.60

35128

7

The proof

714920-98064

The proof of this Division is made by Addition of the Figures under the line or Dividend; for if they return your former Dividend, the work is true wrought, or otherwise be sure some error is in your work; if there remains any fraction after your work is ended, then it is to be added into the lower figures in their severall places, as shall appear by examples following.

Example

72

Division.

Example.

222

22746

246225+212

Divisor.

The quotient.

1798	1439819890794 (800789709
	00000000000000

14383

12586

14384

16182

12586

16182

The proof. 1439819890794 *by Addition.*

Here in this example working according to this latter form of work, there is advantage to be taken; if the figures of the quotient be well noted, as here the fourth figure of the quotient is 7, the Product of the Divisor multiplied by it, is 12586, and also the seventh figure of the quotient is 7, so that coming to multiply the Divisor again by that 7, I need but take the product of the first multiplication by 7, which is 12586, and so place them in their severall places; as in the example, and so likewise there is 8 in the quotient two times, so that
for

for the latter multiplication, I take the first product, 14384, and save that labour of multiplication of the Divisor by 8: and so of any other figure coming into the quotient more times then once, as by the examples will appear,

Example.

775
45549
4244628
218268737

7583	876593204 (115599 0000000000
------	---------------------------------

7583
7583
37915
37915
68247
68247

The

876593204

Proof.

Example

256 | 7856792 (22069
00000000

7122064
71130
232

785656792

E

How

How to divide by a Unite with Cyphers.

If you will divide by 10, or by 100, or 1000, or with any other Unite with Cyphers one or more ; do but cut off so many figures from the right hand of your Dividend, as there are cyphers in your Divisor, and the remains is your quotient.

Example.

If you would divide 786589 by 10, cut off the last figure 9, and the residue is your quotient 78658 $\frac{9}{10}$; or if you will divide by 100, cut off two figures, and the quotient will be 7865 $\frac{89}{100}$; or by a 1000, and the quotient will be 786 $\frac{589}{1000}$; and so of all other.

<i>First.</i>	<i>Second.</i>	<i>Third.</i>
78558 9	7865 89	786 589
I 0	I 00	100 0
78658 $\frac{9}{10}$	7865 $\frac{89}{100}$	786 $\frac{589}{1000}$

If you will divide the product of 1999 squared ; that is to say, multiplyed in it self, which is 3996001 by 1999, for expedition of work, after you have found the first figure of the quotient 1, and taken that out, I find the next figure will be 9 ; which taken out, the third and fourth figures are also found to be 9, and so you need not make multiplication for every severall 9.
but

Division.

5

but the first will serve for all, as in the example following.

Example.

$$\begin{array}{r} 17 \\ \times 979 \\ \hline 1997990 \end{array}$$

$$\begin{array}{r} 1999 \overline{) 3996000} \quad (1999 \\ 3996000 \\ \hline \end{array}$$

$$\begin{array}{r} 1999 \text{ III} \\ 179999 \\ 1799 \\ 17 \end{array}$$

The proof of 39960001 this work.

Example.

$$\begin{array}{r} 89 \\ \times 899 \\ \hline 998899 \\ 99989999 \end{array}$$

$$\begin{array}{r} 99999 \overline{) 999980000} \quad (99999 \\ 999980000 \\ \hline \end{array}$$

$$\begin{array}{r} 89999 \text{ IIIII} \\ 89999999 \\ 899999 \\ 8999 \\ 89 \end{array}$$

9999800001 The proof.

*Brief Rules by Multiplication and
Addition.*

If you multiply any number of nines: as if you will multiply, or square 5 times 9 by 5 times 9, then place your nines in this order following,

Example.

$$\begin{array}{r}
 9999900000 \\
 99999 \\
 \hline
 9999800001
 \end{array}$$

Then say 9 times 9 is 81, place the 1 under the first 9 to the right hand, and then subtract the 1 from the first 9 to the left hand, and add the Cyphers between, and the product is ended, and is 9999800001, as appeareth.

The proof of the work after the ordinary way.

$$\begin{array}{r}
 99999 \\
 99999 \\
 \hline
 899991 \\
 899991 \\
 899991 \\
 899991 \\
 899991 \\
 \hline
 899991 \\
 \hline
 \text{The proof} \quad 9999800001
 \end{array}$$

To multiply any number by 9.

Add a 0 to the number you intend to multiply, and then set the same numbers under them, and subtract them from the uppermost, and the remains is the Product of that multiplication by 9.

Example.

$$\begin{array}{r}
 87987960 \\
 8798796 \\
 \hline
 \text{The product} \quad 79189164
 \end{array}$$

To multiply by $\frac{1}{2}$, or $\frac{1}{3}$, or $\frac{1}{4}$, or $\frac{1}{5}$.

If you will multiply 856 by $24\frac{1}{2}$, first multiply 856 by 24 makes 20544; and then for one half, take half 856, which is 428, and add into the former sum, makes the total 20972.

E 3.

Example

Example.

856	856	856
24 $\frac{1}{3}$	24 $\frac{1}{3}$	24 $\frac{1}{3}$
<hr/>	<hr/>	<hr/>
3424	20544	20544
17128	285 $\frac{1}{3}$	214
42	<hr/>	<hr/>
<hr/>	20829 $\frac{1}{3}$	20758
20972		

What number is that, which being divided by 24, the quotient will be 856? Answer, Multiply 856 by 24, makes 20544 for the number that you seek.

Example.

$$\begin{array}{r}
 856 \\
 24 \\
 \hline
 3424 \\
 1712 \\
 \hline
 20544
 \end{array}$$

There is a plot of Land containing 848 Perches, the one side is 24, what must the other be? Answer, Divide 848 by 24, the quotient is 35 $\frac{1}{3}$ for the other side.

$$\begin{array}{r}
 12 \\
 848 \quad 35 \overset{8}{\underset{3}{\div}} \overset{1}{\underset{3}{\div}} \\
 244 \\
 2 \\
 \hline
 35 \overset{1}{\underset{3}{\div}} \\
 24 \\
 \hline
 140 \\
 708 \\
 \hline
 848
 \end{array}$$

If you will divide the product of 5 times 9 squared, which is 9999800001 by 5 nines, then set the Divisor right underneath the Dividend, and add them together, and cut off the 5 cyphers from the product, and the residue is the quotient.

Example

$$\begin{array}{r}
 9999800001 \\
 99999
 \end{array}$$

The quotient. 9999900000

What number is that, which being multiplied by 15, the totall will be 756? Answ. Divide 756 by 15, and the quotient is 60 $\frac{2}{3}$, or $\frac{2}{3}$, for the answer, or number you do seek.

E 4

Exam-

$$\begin{array}{r}
 756 \overline{) 825} \quad 11 \frac{2}{3} \\
 \underline{255} \\
 1
 \end{array}
 \qquad
 \begin{array}{r}
 50 \frac{2}{3} \\
 15 \\
 \hline
 250 \\
 506 \\
 \hline
 756
 \end{array}$$

There are 825 men, to march 15 in one rank, how many Files will they make. Divide 825 by 15, it makes 55 Files.

Example.

$$\begin{array}{r}
 7 \\
 825 \overline{) 825} \quad (55 \text{ files.} \\
 \underline{255} \\
 1
 \end{array}
 \qquad
 \begin{array}{r}
 55 \\
 15 \\
 \hline
 275 \\
 55 \\
 \hline
 825
 \end{array}$$

There is 948 pounds of powder to be employed in an assault of battery with 6 pieces of Ordnance; the first piece shooteth four pound, the second five the third 6, the fourth seven, the fifth eight, the sixth ten pound, the question is, how many shoots each piece may make to make an equal number of shots? Answer, first, find how many pounds of powder all those pieces of Ordnance do spend, in making each of them one shot: which

which by adding together the number of pounds that each severall piece spendeth, will be found to be 40 : Then divide 948 by 40, and it makes 23 shoots, and there will remain 28 pounds.

Example.

4			23
5	12	Shorts.	40
6	948	(23	— — —
7	440		920
8			28
10			— — —
— — —			
40			948



THE RULE OF REDUCTION.

TO reduce any great number into a smaller denomination, it is done by multiplication, and to reduce small denominations into greater, it is done by division, in this manner: mark how many of the smaller denominations is contained in one of the next greater, and by that number you must multiply the greater; or the contrary, if you would bring small denominations into greater, mark how many of the smaller denominations make one of the next greater, and that number shall be your Divisor.

Example.

If you would reduce pounds Sterling into pence, multiply your pounds by 240 pence, because so many pence maketh a pound sterling, and the totall will be the number of pence in the sum of pounds given. And contrariwise, if you would bring pence into pounds sterling, divide your number of pence by 240 pence, which are the pence in one pound, and the quotient will shew the
number

number of pounds in the sum of pence given : but in this operation the Tables in the beginning of this book will help much for the speedy reducing of pounds, shillings, pence, yards, ells, bushels, pecks, pints, &c. into smaller or greater denominations : for if you search in the said Tables, you shall finde your multipler or divider, whereby you are to multiply or divide your number given, to perform the work, as shall appear by the severall examples following.

Reduction of Coin.

In 87652 pound, how may pence ? in the Table of Coin I find 240 pence makes one pound, so that in multiplying 87652 pounds by 240, makes the sum of pence desired.

1. Example.

87652		
240	xx	
-----	1882	l.
3506080	21036480	(87652
175304	2444440	
-----	2222	
21036480d.		

2. Example.

In 3759 pounds 17 shillings 8 pence, how many shillings, pence and farthings ?

3759

l.					
3759					
20					
<hr/>					
75180					
17					
<hr/>					
75197	s				
12					
<hr/>					
150402		362	s.		d.
75197		843	(17	32	(8
<hr/>		488		4	
502372	d.	4			
4					
<hr/>					
3609488	q.				
		l.	s.	d.	
		Proof. 3759.	17.	8.	

3 Example.

In 3785437289 farthings, how many pounds, shillings and pence: divide by 960 farthings, because 960 farthings make one pound sterling; and the remainder is farthings, which divided by 48, the farthings in one shilling, make 3943163 pounds, 15 shillings 10 pence, $\frac{1}{2}$.

Example.

Example.

431638
 90255160
 3785437289
 88666663
 999999

q.
 4
 321, s. d.
 809 (16, 10 $\frac{1}{4}$)
 488
 4

li.
 6943163
 20

78863276 s.
 12

157726562
 78863276

946359322 pence.
 4

The proof.

3785437289

*How to bring pounds, shillings and pence
at the first work by Division.*

To bring pence at the first work into pounds, shillings, and pence: add a 0 to your number of pence, and divide that sum by 240, makes pounds, and the last figure will be primes, every unite in value two shillings, and the remainder always lesse then 24 pence, or one prime.

Example.

Example:

In 902372 pence, how many pounds, shillings, and pence; add a 0, makes 9023720, which divided by 240 pence, makes, &c.

12	2 d.	20 d.	
184210	l.	s.	d.
9023720	(3759, 8. or 17. 8.		
2444440			
2222	l.	s.	d.
	3759, 17. 8.		

2. Example.

In 75000837504 pence, how many pounds, shillings and pence, add a cypher, or 0.

x	2210	
3620111250	l.	s.
750008375040	(312503489. 6	
24444444440		
2222222222		

How to bring farthings into pounds, shillings, and pence at the first work.

To bring farthings into pounds, shillings, and pence at one work; add a 0 to your number of farthings, and divide the summe by 960, the number of farthings in one pound sterling, makes pounds; and the last figure

figure of your quotient will be primes every one in value two shillings: and if there remain 48, it is one shilling, or take 48 from the remainder for one shilling, the rest are farthings lesse then 48.

Example.

l. s. d. q.

In 756. 13. 2. 2. how many farthings.
20.

15133 s.	668 q.	
12	54638	<i>l. s.</i>
181598 d.	7263940	(756. 6
4	966660	
726394 q.	999	

l. s. q. s. d. ob.
Totall is 756, 12. 58. or 1. 2. 1.

In 3785437248 farthings, how many pounds, shillings and pence, add a 0, and divide by 960, makes 2943163 pounds, 8 primes, or 16 shillings, 0 pence.

4316370	
901051660	<i>l. s.</i>
37854372480	(3943163. 8.
966666660	
9999999	

How

*How to bring pence into pounds, shillings
and pence another way.*

Divide your number of pence by four, and the remainder is pence, then that Quotient by six, and the remainder is groats always less then 6 groats, or one prime, or two shillings; and the latter quotient, cutting off your primes, is pounds, and so you have pounds, shillings and pence.

Example.

785697 pence, how many pounds, shillings and pence: it makes 3273 pounds, 4 shillings 9 pence.

327321 d.	24242 groats.	l.	s.
785697	(196424	(3273	7
44144	666		

If you will bring farthings into pounds, shillings and pence: Divide first by 16, and the remainder is farthings, always lesse then 16, or one groat; and then again by 6, makes pounds, shillings, and pence, as before, cutting off the prime line.

Example.

Example.

In 8735672 farthings, how many pounds,
shillings and pen

Farthings.

2 2

Groats.

91258

533

l.

8735672

(545979

(909616

1666666

66666

11111

The totall is 9099 l, 13 s. 2 d.

Reduction of weight.

In 8756 hundreds, 3 quarters, 24 pounds,
12 ounces Haberdepoise, 16 ounces to the
pound, and 112 pound to the hundred, how
many pounds and ounces.

Example.

£.

quart.

l.

Ounces.

8756

3

24.

12

112

11

16

980780

17512

16

87568

87560

5884580

1

980,80

12

980780 pounds. ounces 15692492

In

In 15692492 ounces Haberdepoyse, how many hundreds, quarters, pounds, and ounces; finde how many ounces makes 112 pound, in multiplying 112 pounds by 16 ounces, makes 1792 ounces; by which divide, makes as in the example following.

Example.

217				
1024				
2386040	C	212	l.	oun.
25092492	(8756	2740	(108	12
2792222		2662		
27099		22		
277				
2				

	C.	qn.	l.	oun.
<i>The Proof.</i>	6756.	3.	24.	12.

Reduction of Measures.

In 2356 Akers, 3 Roods, 27 Perches, how many Perches in all?

Example

Example.

2356	21	Per rood.
160	594	2
	acres	
141360	377107	(235 6 147 (3
235647	266660	40
I	xxx	
377107		

	Acres	Perches	Roods.
The Proof.	2356	3	27

In 765437 Perches, how many Acres, Roods, and Perches : divide by 160,

Example.

xx				
xx369	Acres	3	roods	perches
765437	(4783	297	(3	37
266660		40		
xxx				

Reduction.

Reduction of time.

In 356 years, 24 days, 36 hours, and 22 minutes; how many days, hours and minutes.

Example. 356
 365

 1780
 21364
 10682

 129964 days.
 24

 519856
 2599286
 3

 3119172 Hours.
 60

 18,150320
 22 Minutes.

Total of all 187150342 Minutes.

The

The proof.

In 187150342 minutes, how many hours, days, years and minutes.

Example.

<i>Minutes.</i>	<i>Hours.</i>	<i>Days.</i>
187150342	2222	
287250342	733536	(129964
66666660	(3229272	
	2444444	
	22222	

Days.

222	
2042	<i>Years</i>
129964	(356
36555	
366	

The proof is *Years, Days, Hours, Minutes*
 356 24 36 22

Reduction of Motion.

In 11 Signs, 34 degrees, 25 minutes, 36 seconds, 24 thirds; how many fourths.

Example.

*Example.**Reduction.**Sign. Degr. Min. Sec. Thirds.*

11. 34. 25. 36, 24.

364 Degr.

60

21840 Min.

25

11 Sign.

30

330 Degr.

34

364

Minutes

21865

60

Seconds

1311900

36

Seconds

1311936

60

78716160

24

Thirds

78716184

60

Fourths: 4722971040 *Product total.**The proof.*

In 4722971040 fourths, how many signs, degrees, minutes, seconds, thirds, & fourths?

Example.

Example.

<i>Fourths,</i>	<i>Thirds,</i>	<i>Seconds.</i>
5403182	x 15232	
4722972040	(78716284	(1311936
666666660	6666660	

<i>Seconds.</i>	<i>Minutes.</i>	<i>Degrees.</i>
253336	322	
x511536	(22865	(364.
666660	666	

Degrees. 364 (*Sign.* 12 *Degr.* 4. *Minut.* 25. *Seconds.* 56 *Thirds.* 24.
 330 ~ *The proof.*

*Questions by Reduction.*I. *Question.*

In 389 pounds sterling, how many Dollars of 4 shillings 8 pence, or 14 groats a piece. Reduce 389 pounds into groats, in multiplying them by 60, makes 23340 groats: which divide by 14 groats, make 1667 Dollars and 8 pence.

Example.

Example.

Groats.

<i>l.</i>	<i>l.</i>	<i>s.</i>	<i>d.</i>
389	9902		
60	23340	(1667.	0 8
<hr/>	24444		
23340	xxx		

2 Question.

In 300 pounds sterling, how many angels at 11 shillings a peece. Reduce 300 pound into shillings, makes 6000 shillings; which divide by 11 makes 545 angels, and there will remain five shillings.

Example,

<i>l.</i>	<i>s.</i>
300	568 angels.
20	6000 (545
<hr/>	5. Rest
6000	xxxx I
	xx

3 Question.

In 3012 pounds, how many Ryals of plate at 7 pence a Ryall. Reduce 3012 pounds into pence, makes 722880 pence; which divided by 7, makes as in the example.

Example

1. Example.

3012			
240	Pence:		
<hr/>	7464	Ryals.	d.
120480	722880	(103268	4.
6024	777777		
722880	pence.		

4 Question.

If one Dollar be worth 4 shillings 8 pence, how many Dollars is in 108579 pounds, 16 shillings sterling. Multiply your pounds by 60, makes 6514740; then reduce 16 shillings into groats by 3, makes 48 groats; which added into one totall, makes 6514788, which divided by 14, makes as in the example.

Example.

Pounds.		Shillings.
108579		16
60		3
<hr/>		<hr/>
6514740		48
48		

groats. 6514788

970520 Dollars.
 6514788 (465342
 1444444
 11111

Reduction.

In 465342 Dollars of 14 groats a piece how much sterling money? Multiply your Dollars by fourteen makes 6514788 groats, which divide by 60, makes 108579 pounds sixteen shillings.

Example.

4653342	14	<i>Groats.</i>		
1861368		3484		
465342		6524788	(108579	16
6514788		6666660		

5. Question.

If I receive 8060 French Crownes at six shillings a piece in *France*, how much sterling must I pay for them at six shillings one penny a piece? Multiply 8060 by 73 pence, the number of pence in one French Crown, makes 588380 pence: which divided by 240 pence, makes 2451 pound, 11 shillings 8 pence.

Example.

Example.

8060		
73	x	
<hr/>	20214	Pound.
24180	588380	(2451.
56420	244 40	
<hr/>	222	
588380		
Pence.		
28	s. d.	
240	(11 8	
222		
x		

6 Question.

If 564 yards of cloth cost 124 pound 12 shillings, how may I sell a yard to gain 22 pounds seven shillings by the whole summe? Answer, Add 22 pounds 7 shillings to 124 pounds 12 shillings, makes 146 pounds 19 shillings: which reduced into pence, makes 35268 pence; which divided by 564 makes 5 s. 2 d. $\frac{16}{44}$, of a farthing for the price to sell one yard for to gain 22 pound seven shillings by the bargain.

Example.

	<i>l.</i>	<i>s.</i>
	146	19
	20	
	<hr/>	
	2939	
	12	
	<hr/>	
	5878	
	2939	
	<hr/>	
	35268	

<i>l.</i>	<i>s.</i>
124	12
22	7
<hr/>	
145	19

3
80
2020 d.
35268 (6233)
5644
56

7 Question.

If 156 ells of cloth cost 124 pounds, what will 1 ell cost? Reduce 124 pounds into shillings, make 2480 shillings; which divided by 156, makes 15 shillings 4 pence, $\frac{2}{3}$ q.

Example.

	1	
124	624	<i>s.</i>
20	2480	(15 $\frac{14}{36}$ of a shilling.
<hr/>		1566
2480	25	

8. Question.

If I sell 342 yards of velvet for 241 pounds, 17 shillings, how do I sell one yard? Reduce your 241 pounds 17 shillings, into shillings, makes 4837 shillings, which divided by 342 yards, makes 14 shillings 1 penny, $\frac{43}{37}$ of a penny

Example.

l. s.		49
241 17	4	12
20	2419 s.	
4837	(14 $\frac{43}{37}$)	98
4837	3422	49
	34	
		588
246 d.		s. d
588	(1 $\frac{43}{37}$ of a penny, makes 14. 1. $\frac{43}{37}$ d.	
342		

9. Question.

A certain Noble man sent his servant to the Tower of London, with the Kings Majesties Warrant to the Mint-master for 3408 pounds, 15 shillings, willing him to bring it in pieces of 12 d. of 9 d. of 6 d. of 3 d. of 2 d. of 1 d. of 1 ob. commanding him to bring him of each sort a like quantity, or number of pieces the question is to know, how many of each sort he shall bring unto his master, to make the said sum of 3408 l. 15 s. Reduce

E. 3

your

your money into half-pence, and also your severall pieces of coyn into half-pence, and divide the greater by the lesser, as in the example.

Example.

l. s.
3:08 15.
20

68175

24

272700
136350
1636200

22
29846 pieces,
2636220 (24420 $\frac{2}{7}$)
677777
6666.

12 d.

9

6

3

2

1 ob.

67

What

What Progression Arithmetical is, and the Rule.

PROGRESSION Arithmetical is nothing else but a brief summoning, collecting or gathering together of divers numbers, increasing by equall proportion, into one totall sum. As for example: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, &c. or 3, 4, 5, 6, 7, 8, &c. or, 2, 4, 6, 8, 10, 12, &c. or else by 3, as 5, 8, 11, 14, 17, 20, 23, 26, &c. or of all such like kindes of Progression, which do increase equally by 2, 3, 4, 5, or 6, or any other greater increase, and such kind of Progression is called, *Arithmeticall.*

2. *To find the sum of a Progression.*

Mark first how many severall places there be in your progression, and note that down; then add the first number of the progression to the last: then multiply halfe those two numbers by the whole number of the places, or else half the number of the places by the whole number of the first and last Term added into one sum, and both ways will produce the totall sum of that Progression.

Example.

There is a Progression beginning at 4 and is continued unto 44 increasing by 4. First, set down the numbers of that progression, beginning at 4 and ending at 44.

Terms. 4. 8. 12. 16. 20. 24. 28. 32. 36. 40. 44.

Places. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

Here the first Term is 4, and the last term is 44, which added together, makes 48, the one half which is 24, multiplied by 11, the whole number of places makes 264 the totall.

Example.

44.		44
4		4
<hr/>	481	<hr/>
48	52	48
11	<hr/>	<hr/>
<hr/>	240	24
48	24	11
48	<hr/>	<hr/>
<hr/>	264	24
528		24
<hr/>		<hr/>
264		264

The first Question.

A certain man gave to his daughter in marriage,

marriage the first day of *January* one pound, and the second day 2 pound, the third day 3 pound, and so increasing every day 1 pound, untill 31 days were expired: the question is, what he should receive in the whole sum. First, 31 dayes is the number of places: and 31 *l.* is the last payment: add the first term 1 to the last term 31, makes 32; which multiplied by 15 one half, which is half 31; or take 31 and half 32, and the product will be the totall sum of his wives portion.

Example.

$$\begin{array}{r}
 32 \\
 15 \frac{1}{2} \quad 31 \\
 \hline
 16
 \end{array}$$

$$\begin{array}{r}
 480 \quad \text{---} \\
 16 \quad 186 \text{ makes } 496 \text{ totall.} \\
 \hline
 31 \\
 496 \quad \text{---} \\
 496
 \end{array}$$

How to find the later term of a Progression.

If you would know the later term of a Progression of 100 terms, increasing by 3, and beginning at ten; take one term from 100 terms, and there will remain 99, which multiply by 3 the excesse or difference of the increase, makes 297; to the which, if you

add 1

add 1

add the first term 10, makes 307 for the 100 term of that progression.

2. *Example.*

100 terms 1 Substrakt. <hr style="width: 100%;"/> 99	99 terms. 3 Excesse. <hr style="width: 100%;"/> 297 10 first term.
307	

Or otherwise take the excesse 3 from the first term 10, and there will rest 7, which note apart, then multiply the number of places 100 by the excesse 3, makes 300; to which add the 7, makes 307, as before.

Example.

10 3 <hr style="width: 100%;"/> 7	10 3 <hr style="width: 100%;"/> 307
---	---

Second question.

A certain Merchant bought 78 pieces of Exeter Carries, to pay two shillings for the first piece, four shillings for the second, six shillings for the third, 8 shillings for the fourth, and so forth, increasing his price unto 78 pieces, two shillings in every piece; the question is, what the Clothier had for his Carries.

First, find the later term; taking one from

from 78, makes 77; which multiply by 2, makes 154; to which add the first term 2, makes 156 for the 78, or last term: then add 2 the first term to 156 the last, makes 158, which multiply by 39 half of the number of places, makes 6162 shillings for the sum of money the Clothier shall receive for his 78 Carseys.

Example.

78	156	
1	2	
77	158	
2	39	
	1422	
156 the last term	474	
	6162 s.	
	or 308 l. 2 s.	

To find the number of terms.

There is a progression, whose first term is 2, the last term 156, and the excess was 2, I would find the number of terms.

Subtract the first term from the last, and divide the remainder by the excess, the quotient is the number of terms, wanting but one. Example 2, the first term from 156, the last leaves 154, which divided by 2, makes

add the first term 10, makes 307 for the 100 term of that progression.

2. *Example.*

100 terms	99 terms.
1 Substrakt.	3 Excesse.
<hr/>	<hr/>
99	297
	10 first term.
	<hr/>
	307

Or otherwise take the excesse 3 from the first term 10, and there will rest 7, which note apart, then multiply the number of places 100 by the excesse 3, makes 300; to which add the 7, makes 307, as before.

Example.

10	10
3	3
<hr/>	<hr/>
7	307

Second question.

A certain Merchant bought 78 pieces of Exeter Carries, to pay two shillings for the first piece, four shillings for the second, six shillings for the third, 8 shillings for the fourth, and so forth, increasing his price unto 78 pieces, two shillings in every piece; the question is, what the Clothier had for his Carries.

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To find the number of terms.

There is a progression, whose first term is 2, the last term 156, and the excess was 2, I would find the number of terms.

Subtract the first term from the last, and divide the remainder by the excess, the quotient is the number of terms, wanting but one. Example 2, the first term from 156, the last leaves 154, which divided by 2, makes

makes 77, to which add 1, makes 78, the number of terms.

$$\begin{array}{r}
 156 \\
 2 \\
 \hline
 154
 \end{array}
 \qquad
 \begin{array}{r}
 x \\
 154 \text{ (77} \\
 22 \text{) The number of terms} \\
 \hline
 78
 \end{array}$$

How to find the excessse or difference.

Subtract the first term from the last, and divide the remainder by one lesse then the number of the terms, and the quotient will be the excessse or difference.

Example.

Subtract ten the first term from 307 the last term, there will remain 297, which divide by 99, one less then the number of terms, which are 100, makes 3 the excessse.

$$\begin{array}{r}
 307 \quad 00 \\
 10 \quad 297 \text{ (3 the Excesse.} \\
 \hline
 297 \quad 99
 \end{array}$$

To find any middle Term.

Subtract a unite from the number of the term you would know, and multiply the remainder by the difference, and to that product add the first term, and the totall is the term you do seek.

Exam-

Example.

To find the 30 term in the last example of 100 terms, subtract 1, refts 29; which multiply by 3, the excesse makes 87; to which add the first term 10, makes 97 for the 30 term of that progression

Example

30	1	10	11	40	21	0
1	2	13	12	43	22	73
<hr/>	3	16	13	46	23	76
29	4	19	14	49	24	79
3	5	22	15	52	25	82
<hr/>	6	25	16	55	26	85
87	7	28	17	58	27	88
10	8	31	18	61	28	91
<hr/>	9	34	19	64	29	94
97	10	37	20	67	30	97

How to find what number shall begin and finish a Progression.

To the number of terms add one, which multiply by half the number of terms, and by the product divide the sum of the Progression, and the quotient will be the first term, and excesse of that progression.

Example.

At 16 payments 353 pounds, 12 shillings. is to be paid, the question is, what number must begin and continue the progression.

First

First the money 7072 shillings; then to 16, the number of terms, add 1, makes 17; which multiply by 8, half the number of terms makes 136 for Divisor; by which divide 7072, and the quotient is 52 shillings for the first payment and excess, and by the same the others payments are found.

Example.

<i>l.</i>	<i>s.</i>		<i>s.</i>	
353	12	2	17	
20		7072	(52	8
		1366		
7072		13		136

Example.

<i>N^o</i>		<i>The Pro^{of}.</i>	<i>n^o</i>	
52	1		468	9
104	2	1 8 7 2	520	10
156	3	5 2 0 0	572	11
208	4		622	12
260	5		676	13
312	6		728	14
364	7		780	15
416	8		832	16
1872			5200	

Of continuall proportion, or Geometricall Progression.

TWo terms being given to finde out a third in continuall proportion.

Divide the Quadrat, or Square of the second term by the first term, and the quotient shall be the third proportionall number or term sought for.

Example.

Let 8 and 12 be two two terms given, unto which it is required to find a third term or continuall proportion.

The quadrat or square of the second term 12 is 144, which being divided by the first term 8, the quotient will be 18 for the third proportionall, or term required.

To find a mean proportionall between any two numbers, or extreames given.

Multiply the extreames given the one by the other: then extract the square root of the product for the mean proportionall sought for.

Example.

Let 4 and 9 be the two numbers or extreames given, and let it be required to finde a mean or middle proportionall between them. Multiply 4 by 9, the product will be 36, the square root whereof is 6, which is
the

the mean proportionall between 4 and 9 the extreames given.

Between 2 and 54, let 2 mean proportionals be desired by the square of 2, which is 4; multiply 54, it makes 216, the Cube root whereof is 6 for the least of the two Means: Again, by 2 multiply 2916, which is the square of 54, makes 5832, of which the cube root is 18, for the greater mean proportionall sought.

To find any middle Term, or any other Term in a Geometricall Progression.

Increase your Progression by the excesse, and the square of the Term when you cease, or the number multiplied in it self squarely, is the double of your Term save 1, if the progression begin with an unite.

But if the first term be not an unite, then the square of any term is the double number of the said term: as if you would square the sixth term, then the product should be the twelfth term: and so of any other term.

Example.

A Gentleman coming into a Market to buy a Horse, was asked thirty pounds for him. Nay (said the Gentleman) his price is over-great. Then said the owner (having more craft and subtilty then the Gentleman, as

com-

commonly the old Proverb is true amongst Horse-courfers); My Gelding hath four shooes upon his four feet (quoth he) you shall give me for the first nail (there being 28 in all) one farthing, and for the second nail two farthings, and for the third four farthings, and for the fourth 8 farthings; and so double at every nail you shall have him. Whereat the Gentleman smiled, saying; I will have him, and so they bargained, and then went to an Arithmetician to cast up the sum: but how this Gentleman was able to pay for his Horse, will appear by the work which I have put for an example; because I would not have any man ignorant in Arithmetick, to make any such blinde matches without advice, as I know many have done to their cost.

Example.

Now according to the Rule, I increase this Progression unto the 7 Term thus, 1, 2, 4, 8, 16, 32, 64; which 64 I multiply by it selfe squarely, the product is 4096, which by the Rule is the 13 Term, which is 1 Term lesse then the double of 7: then multiply that 4096 by 2, it makes 8192, which is the 14 Term. Then multiply 8192 by 8192, and the Product is 67108864, which is the 27
Term

Term: the which being doubled, makes the
Term 134217728.

Example.

$ \begin{array}{r} 64 \\ 64 \\ \hline 256 \\ 384 \\ \hline 4096 \\ 2 \\ \hline 8192 \end{array} $	$ \begin{array}{r} 8192 \\ 8192 \\ \hline 16384 \\ 73728 \\ 8192 \\ 65536 \\ \hline 67108864 \\ 2 \\ \hline 134217728 \end{array} $
--	--

The Extrems and Excess of a Progress given, to find the sum.

Multiply the last Term by the Excess, and from the Product abate the first Term, and divide the remainder by a Unite less then the excess, and the quotient is the sum of the Progression desired.

Example.

In the last examples the excess was 2, by which I multiply 134217728, and the Product is 268435456, from which abate 1, the first term, and the remainder is 268435455; which

which should be divided by one unite less then the excess which is two, and one less is but one; therefore seeing one doth neither multiply nor divide, I conclude the price of the horse to be 26843545 farthings, which I divide by 960, the farthings in one pound sterling, and the quotient is 27620 pound, 5 shillings 3 pence 3 farthings, the price of the horse, as in this example.

Example.

134217728

2

268435456

1 farthing.

268435455

Farthings.

852

76299253

l.

s.

2684354850

(279620

2

956666660

999999

l.

s.

d.

q.

Total.

279620.

5.

3.

3.

I have inserted in the next page the triall of this work by increasing the Terms from 1 to 18, and also the addition of the totall, which shews the answer to be true.

Example

Example.

1	1
2	2
4	3
8	4
16	5
32	6
64	7
128	8
256	9
512	10
1024	11
2048	12
4096	13
8992	14
16384	15
32768	16
65536	17
121072	18
262144	19
524288	20
1048576	21
2097152	22
4194304	23
8388608	24
16777216	25
33554432	26
67108864	27
134217728	28

The totall.

268435455

Other

Otherwise, subtract the first term from the last, and divide the remainder by one less than the Excesse, and to the Quotient add the last Term, and the totall is the sum.

Example.

To twelve men a sum of money is given, to the eldest $\frac{1}{2}$, to the second $\frac{1}{2}$, the remainder, and so to every one of the rest, and the last portion was found to be four pounds, and the last half being also four pounds, was given to a friend to see the money to be equally distributed; what was each mans portion, and the sum given?

Let four be the last portion, and twelfth Term, and so double until you come to the first Term, and you shall find every mans portion. Then by this second Rule, you shall find the totall to be 16380 pounds, to which add the Executors part four pounds, makes 16384 pounds.

3 *Example.*

A Gentleman bought a Mannor, with all the appurtenances, for a sum of money unknown, but he was to pay at severall days of payment, by continuall triplation of every payment from the first payment, which was four pound, & the last 8748. / the question

question is what he paid for the said Mannor and Lands.

Example.

Substra^t the first term 4 from the last term 8748, there will remain 8744 ; which divide by the excess one less, *viz.* by 2, and the quotient will be 4372 : to the which add the latter term 8748, and the totall is 13120 pounds, for the summe which the said Mannor and Lands cost.

$$\begin{array}{r}
 8748 \\
 \underline{\quad 4 \quad} \\
 8744
 \end{array}
 \qquad
 \begin{array}{r}
 x \\
 8744 \quad (4372 \\
 \pi\pi\pi\pi \quad 8748 \\
 \hline
 13120
 \end{array}$$

Fractions.

YOU shall understand that in the work of Fractions hereafter ; in the next page following I have used another form of working then heretofore hath been used ; as when you will set forth any Fraction, as $\frac{3}{4}$ thus heretofore used, set them out thus, 3:4, or $\frac{7}{8}$, place thus, 7:8 with a double prick between them : and so of any other, as of $\frac{15}{20}$ of a pound, thus, 15:20 of one pound : or fractions of fractions thus $\frac{3}{4}$ of $\frac{1}{2}$ of $\frac{1}{2}$ of a pound, set them thus, 2:3 of 3:4 of 5:6 of a pound:
and

and so of all other fractions, as shall appear afterwards in the operations following; and so being placed, they are more apter and fitter for all the severall operations of Arithmetick, then being placed after the ordinary form of working. And thus much I thought good to expresse for the better understanding of the Rules hereafter following in all fractionall operations. And now I will proceed unto the severall Rules of Fractions with their Examples.

How to reduce Fractions of Fractions:

The first Rule.

Multiply their Numerators one into another for a new Numerator, and likewise their Denominators for a new Denominator, and the work is ended.

Example.

If you would reduce $3:4$ of $2:3$ of $7:8$ of one pound sterling; multiply 3 by 2 makes 6, and then 6 by 7 makes 42 for the new Numerator to your fraction; then 4 by 3 makes 12, and 12 by 8 makes 96 for a new Denominator, and the fraction is $42:96$ of a pound.

$3:4$ of $2:3$ of $7:8$ of 1 *l.* makes $42:96$ of a *li.*

2. Exam-

Again 3 : 5 of 9 : 8 of 7 : 10 of 11 : 12 of a pound, makes 2079 : 4800.

$\begin{array}{r} 3 \\ 9 \\ \hline 27 \\ 7 \\ \hline 189 \\ 11 \\ \hline 189 \\ 189 \\ \hline 2079 \end{array}$	$\begin{array}{r} 8 \\ 5 \\ \hline 40 \\ 10 \\ \hline 400 \\ 12 \\ \hline 4800 \end{array}$
---	---

3 Example.

What is 1 : 2 of 2 : 3 of 3 : 4 of 4 : 5 of 5 : 6 of 6 : 7 of one pound? Answer, cross all the by, as equal terms, and set the unequall terms 1 : 7 of a pound for the total sum; but after the other form of work, it would have brought out 20:5040 of a pound, which by abbreviation makes 1 : 7.

The Proof.

72:504, 36:252, 18:126, 9:63, 3:21, 1:7.

2 Rule. *How to reduce Fractions
of Integers.*

Multiply all the Denominators of your severall fractions for the new, or common Denominator to all your given fractions.

Then to find new Numerators to each of your given fractions, multiply each fractions numerator into the denominators of each severall fraction, excepting his own denominator, for the new numerators, as in this example.

Example.

If you would reduce $3:4$ and $5:6$ and $7:8$ of a pound into one Denomination; multiply all the denominators together, saying 4 by 6 makes 24, and 24 by 8 makes 192 for the common denominator to all the given Fractions.

Then multiply 3, the Numerator of the first Fraction, by 6, the Denominator of the second fraction makes 18, and 18 by 8 makes 144 from his Numerator.

Secondly, multiply 5, the Numerator of the second fraction by 4 and 8, the Denominators of the other 2 fractions, makes 160 for the new Numerator of the second fraction.

Thirdly multiply 7 the Numerator of the third fraction, by 6 and 4, makes 168.

Example.

N.D.	18	20	42	144
144 3:4	8	8	4	160
160 5:6	—	—	—	168
168 7:8	144	160	168	—
—	—	—	—	192
192	The totall, 472:192			

2 Example.

If you would reduce 2:3, and 3:5, and 8:9 of a pound.

N.D.		N.D.
90 2:3		7:10 1365
81 3:5	Also,	10:15 1300
120 8:6		11:13 1610
—		—
135		1950

3 Example.

If you would reduce 7:8, 1:3, 2:3, 4:5, and 6:7 of a pound.

N.D.		
2205 7:8		
840 1:3 40	1:2 40	
1680 2:3 70	7:8 70	
2016 4:5 48	3:5 48	
2160 6:7	—	—
—	80 158	
2520		

How

How to prove a Fraction by the known parts of Coyn.

In the first example of fractions of fractions, I find that 3:4 of 2:3 of 7:8 of a pound sterling to be 42:96 parts of a pound; for triall whereof take 7:8 of a pound, which 17 shillings 6 pence, or 210 pence, the 2:3 of that number is 140 pence; and 3:4 of 140 pence is 105 pence; now multiply 42 the Numerator of your fraction by 240 d. and divide by 96 the Denominator, makes 105 pence, the proof as followeth.

4 Example.

s. d.
17.6
12.
—
34
176
—
210
—
42
240
—
1680
84
—
10080

210 (70
33 2
—
140

d.
140
70
35
—
105 d.

40
10080 (105 d.
9660
99

2 Example.

In the first example of Fractions of integers, there was 3:4, 5:6 and 7:8 of a pound, reduced into one denomination, and the totall by addition was 472:192 of a pound. Now for the proof of the work, multiply the numerator 472 by 240, makes 113280; which divided by 192 the denominator, makes 590 pence; which divided by 12 pence, makes 2 pound 9 shillings 2 pence. The proof of this triall in the parts of a pound, take first for 3:4 of a pound, or 15 shillings; then 5:6 of a pound is 16 shillings 8 pence; also 7:8 of a pound is 17 shillings 6 pence; and the totall added together, is 2 pound 9 shillings 2 pence, which proves the work to be true.

Example.

$$\begin{array}{r}
 472 \\
 240 \\
 \hline
 18880 \\
 944 \\
 \hline
 113280
 \end{array}$$

$$\begin{array}{r}
 0 \\
 1720 \\
 113280 \quad (590 \\
 2922 \\
 19
 \end{array}$$

d.		15. 0
222	s. d.	16. 8
500(49	2.	17. 6
222		
x		2. 9. 2.

3 Rule. Addition in Fractions.

If your fractions be of one denomination, then add all your numerators together, subscribing the common denominator under the line.

Example.

2:4	3:12	32:8
5:4	8:12	17:8
3:4	11:12	13:8
7:4		
<hr style="border: none; border-top: 1px solid black;"/>	<hr style="border: none; border-top: 1px solid black;"/>	<hr style="border: none; border-top: 1px solid black;"/>
17:4	22:12	62:8

The second Rule.

If your Fractions be not of one denomination, then reduce them by the second rule of Reduction to one denomination, and then add them into one sum, subscribing under the common denominator.

Example.

40	2:3	1440	24:12
45	3:4	836	13:10
38	4:5	2040	17:6
<hr style="border: none; border-top: 1px solid black;"/>	<hr style="border: none; border-top: 1px solid black;"/>	<hr style="border: none; border-top: 1px solid black;"/>	<hr style="border: none; border-top: 1px solid black;"/>
133	60	4316	720

If you would add 40:80, 30:200, and 50:90, cut off a cypher from each Numerator and Denominator, and the Fractions re-

maining will be of the same with the given fractions, and then work as before.

Example.

720	4:8	48	30:40
216	3:20	192	60:20
800	5:9	56	70:80
<hr/>			
1736	1440	296	64
<hr/>			

The proof of Addition by parts of ooyne.

In the second example, 2:3, 3:4, and 4:5 of a pound, are found to be 133:60, therefore divide 133 by 60, makes 2 pound, and 13,60 or 13 groats remaining, which is 2 pound 4 shillings, 4 pence.

The proof, add 2:3 of a pound, which is 13 shillings 4 pence; and 3:4 of a pound, which is 15 shillings, and 4:5 of a pound, which is 16 shillings into one totall, makes 2 pound, 4 shillings 4 pence, as before.

Example.

Groats:				s.	d.
1.	l.	s,	d.	13.	4.
233	(2	4	4	15.	0
60				16	0
				<hr/>	
				l.	
				2	4 4

4 Rule.

4 Rule. *Subtraction in Fractions.*

As before in Addition, so also in Subtraction, reduce your fractions to one common denomination, then subtract the smaller numerator from the greater, and subscribe the common denominator under the remainder.

1 Example.

If you will subtract $3:4$ from $7:4$, there will remain $4:4$, or one integer.

Also $7:12$ from $3:12$, leaves $6:12$, or $1:2$ remaining. But if you will subtract $2:3$ from $7:8$, then reduce them to one denomination by the second Rule of Reduction, and work as in this example.

Example.

$3:4$	$7:12$	16	$2:3$
$4:4$	$13:12$	21	$7:8$
<hr/>			
$4:4$	$6:12$		$5:24$

2 Example.

Again, $3:8$ from $15:16$, leaves $72:128$, remains

120	$15:16$
48	$3:8$
<hr/>	
$72:$	128
<hr/>	
	G 4

The

*The proof of Substraction by the parts
of coyn.*

In the example before, where I take 2:3 from 7:8, the remainder was 5:24 of a pound; which is five times ten pence, or 4 shillings 2 pence. Also for proof take 13 shillings 4 pence, which is 2:3 of a pound, from 7:8, which is 17 shillings 6 pence, there will remain four shillings two pence, as before.

5 Rule. Multiplication in Fractions.

Multiply numerator by Numerator, and Denominator by Denominator, to make the new Numerator, and new Denominator, and the work is ended.

1 Example.

If you will multiply 2:3 by 3:4, the product of that multiplication will be 6:12, or 1:2.

6	15	2520
2:3	5:7	35:60
3:4	3:4	72:120
12	28	7200 or 252:720

*The proof of Multiplication by the parts
of coyn.*

In the first example 2:3 is multiplied by 3:4, and the product makes 6:12 of a pound,
or

or ten shillings : for proof whereof multiply 13 shillings 4 pence, or 160 pence, which is 2:3 of a pound, by 15 shillings, or 180 pence, which is 3:4 of a pound, and the product will be 28800, which being divided by 240 pence, the pence in one pound, will yeeld in the quotient 120 pence, or ten shillings.

Example.

s.	d.		
13	4	15	180
12		12	160
<hr/>			
26		30	10800
134		15	180
<hr/>			
160		180	28800
<hr/>			
40	d.	s.	
28800	(120	120	(10
24440		222	
440		2	

6 Rule. Division in Fractions.

Multiply the Numerator of the Dividend by the Denominator of the Divisor for a new Numerator ; and secondly, the Denominator of the dividend by the Numerator of the divisor, for a new Denominator, & the division is ended : or otherwise place your dividend first above, and the divisor underneath, after

my manner, and multiply crosse, and place them as in these examples.

If you will divide 6:12 by 2:3, which was the product of 2:3 by 3:4 in the last example, then it will bring out 18:24, or 3:4, the other number, which proves the work good.

Example.

18	10	360
6:12	2:3	12:15
2:3	4:5	16:30
24	12	240

If the Denominators of the Fractions be both alike, then divide their numerators one by another; as 27:32 divided by 3:32, makes the quotient to be 9:32.

Example.

9	3	3
27:32	9:8	21:12
3:32	9:8	7:12
32	8	1:2

If the Numerators be alike, then set the denominator of the Divisor above the Denominator of the Dividend, as 3:4 by 3:8, makes the quotient 8:4, or two integers, and contrariwise, 3:8 by 3:4, makes the quotient 4:8, or 1:2.

Example.

Example.

8	4	24
3:4	3:8	7:28
3:8	3:4	7:24
4	8	16

The proof of Division by the parts of coyn.

In the second of the first example, where I divide 2:3 by 4:5, the quotient is 10:12, which in coyn is 16 shillings 8 pence : for proof I do multiply 2:3 of a pound, which is 163 pence, by 24, makes 38400 ; which divide by 4:5, or 192 pence, makes 200 pence, which is sixteen shillings eight pence : the proof.

Example.

s.	d.	s.		160
2:3	13	4	4:5	16
	12			12
<hr/>				6400
160		192		320
<hr/>				
	d.	d.	s.	d.
38400	(200	88		
19223		500	(16	8
199		122		
x		x		

7 Rule. *How to work whole numbers with Fractions.*

If you will add, subtract, multiply, or divide whole numbers with fractions, set the whole numbers fraction-wise, and put 1 after the Denominator, and then work as in the Rules before, as if they were all fractions, and no whole numbers.

Example.

If you will add 33:1 with 13:4, multiply the Numerator 33 of your whole number, by the Denominator of your Fraction 4, makes 132:4, which add unto 13:4, makes the totall 145:4.

132 33:1	896 128:1
<i>Ad.</i> 13 13:4	36 36:7
145 : 4	932 : 7

2 Example.

If you will subtract 13:4 from 33:1, reduce them, and subtract 13 from 132, rest 3194

132 33:1	896 128:1
<i>Sub.</i> 13 13:4	36 36:7
119 : 4	860 : 7

3 Exam-

3 Example.

If you will multiply $33:1$ by $13:4$; multiply the numerators, 33 by 13 , makes 429 ; to the which subscribe the Denominator 4 , makes $429:4$:

$$\begin{array}{r} 33:1 \\ 13:4 \\ \hline 429:4 \end{array}$$

$$\begin{array}{r} 128:1 \\ 36:7 \\ \hline 4608:7 \end{array}$$

4 Example.

If you will divide $33:1$ by $13:4$, multiply crosse 33 by 4 , makes 132 to be set above; then 13 by 1 makes 13 for Denominator.

$$\begin{array}{r} 132 \quad 108 \quad 896 \\ 33:1 \quad 27:1 \quad 128 \quad :1 \\ 13:4 \quad 32:4 \quad 36 \quad :7 \\ 13 \quad 32 \quad 36 \end{array}$$

8 Rule. How to work whole numbers and Fractions with Fractions.

Reduce your whole numbers into Fractions, in multiplying your whole number by the denominator of your Fractions, and unto that product add the Numerator of your fraction, and subscribe the old denominator.

1 Example.

If you will multiply $233:4$ by $3:5$, reduce
28

7 Rule. *How to work whole numbers with Fractions.*

If you will add, subtract, multiply, or divide whole numbers with fractions, set the whole numbers fraction-wise, and put 1 after the Denominator, and then work as in the Rules before, as if they were all fractions, and no whole numbers.

Example.

If you will add 33:1 with 13:4, multiply the Numerator 33 of your whole number, by the Denominator of your Fraction 4, makes 132:4, which add unto 13:4, makes the total 145:4.

132 33:1	896 128:1
<i>Ad.</i> 13 13:4	36 36:7
145 : 4	932 : 7

2 Example.

If you will subtract 13:4 from 33:1, reduce them, and subtract 13 from 132, rest 3194

132 33:1	896 128:1
<i>Sub.</i> 13 13:4	36 36:7
119 : 4	860 : 7

3 Exam.

3 Example.

If you will multiply $33:1$ by $13:4$; multiply the numerators, 33 by 13 , makes 429 ; to the which subscribe the Denominator 4 , makes $429:4$:

$$\begin{array}{r} 33 : 1 \\ 13 : 4 \\ \hline 429 : 4 \end{array}$$

$$\begin{array}{r} 128 : 1 \\ 36 : 7 \\ \hline 4608 : 7 \end{array}$$

4 Example.

If you will divide $33:1$ by $13:4$, multiply crosse 33 by 4 , makes 132 to be set above; then 13 by 1 makes 13 for Denominator.

$$\begin{array}{r} 132 \\ 33 : 1 \\ 13 : 4 \\ 13 \end{array} \quad \begin{array}{r} 108 \\ 27 : 1 \\ 32 : 4 \\ 32 \end{array} \quad \begin{array}{r} 896 \\ 128 : 1 \\ 36 : 7 \\ 36 \end{array}$$

8 Rule. How to work whole numbers and Fractions with Fractions.

Reduce your whole numbers into Fractions, in multiplying your whole number by the denominator of your Fractions, and unto that product add the Numerator of your fraction, and subscribe the old denominator.

1 Example.

If you will multiply $283:4$ by $3:5$, reduce

38

28 $3:4$ into fourths in multiplying by the Fractions Denominator 4, saying 28 by 4 makes 112, to the which add the Numerator of your fraction 3, makes 115: which multiplied by $3:5$, makes 345:20

$$\begin{array}{r} 28 \quad 3:4 \quad 115:4 \\ 4 \quad \quad 3:5 \end{array}$$

$$115 : 4 \quad 345 : 20$$

If you will divide 28 $3:4$ by $3:5$; reduce them as before, and then multiply them crosse, makes 115:4 by $3:5$, is 575:12.

Example.

$$\begin{array}{r} 575 \\ 1154 \\ 3:5 \end{array}$$

12

3 Rule. How to abbreviate a Fraction.

Take one half of the Numerator, and $1:2$ of the Denominator, as oft as you may, untill the lowest numbers in value of your Fractions comes to be primes together, which are such numbers, as cannot be abbreviated no lower.

Example

Example.

In the first example of Fractions of Fractions, the fraction was $72:504$, which was abbreviated unto $1:7$ of a pound: First, take half the Numerator 72 , which is 36 , then half the Denominator 504 , which is 252 ; then $1:2$ of 36 is 18 ; and $1:2$ of 252 is 126 ; Again, $1:2$ of 18 is 9 , and $1:2$ of 126 is 63 ; then I see I cannot take $1:2$ of the remainder, wherefore I see I may abbreviate them by 3 still, saying, the third part of 9 is 3 , and $1:3$ of 63 is 21 : lastly, $1:3$ of 3 is 1 , and $1:3$ of 21 is 7 . which place thus, $1:7$, so that I find by abbreviation that $72:504$ of a pound, is one seventh part of a pound.

Example.

$72:504$ $36:252$ $18:126$ $9:63$ $3:21$ $1:7$

If you cannot take half the numbers, then mark whether they will abbreviate by $3:4$, or 5 , or any other number under 9 : as for example, I would abbreviate $92:144$, I see I may abbreviate both by 4 ; then taking 92 , divide by 4 , makes 23 , and 144 by 4 , makes 36 , totall $23:36$, &c.

If you wil abbreviate $375:625$ of a pound, you may easily see they will be both abbreviated by 5 ; wherefore divide the Numerator and Denominator both by 5 , as oft as you can,

can, untill they become primes together, and you shall find the value of that fraction to be 3:5 of one pound, or twelve shillings.

Example.

$$\begin{array}{ccccccc} \overset{2}{3} & \overset{2}{7} & \overset{2}{5} & & \overset{2}{7} & \overset{2}{5} & \overset{2}{3} \\ 375 & (75 & 625 & (125 & 75 & (15 & 225 \\ 55 & & 555 & & 55 & & 55 \end{array} \quad (25 \quad 3:5$$

10 *Rule. How to find the value of any Fraction.*

Multiply the Numerator of your fraction by the parts contained in the whole, and divide that Product by the old Denominator, and the Quotient will be the value of that fraction in the known parts of Coin.

Example.

If you would know what 24:32 parts of a pound is in Coin, Multiply your Numerator 24 by 24, the pence in one pound, makes 5760; which divided by 32, the Denominator, makes 180 pence, or 15 shillings, the true value of that fraction.

Example.

Example.

24	23	d	6	s.
240	5760	(180	280	(15
960	3222		222	
48	22		2	

5760

What is 343:522 parts of a yard; multiply 343 by 16, the number of nails in one yard, makes 5488; which divided by 522, makes 10 nails, and 268:522 parts of a nail.

Example.

343	26	Nails.
16	5488	(10 268:522
5488	522	

II Rule: *How to change the Sirname of a Fraction.*

Multiply the Numerator of your Fraction by the parts or new Sirname of that you would change your fraction into, and divide by your Denominator, and the quotient will be your desire.

Example.

I have 324:1620 parts of a year, which I would

would convert into dayes; I multiply 324 by 35, the number of dayes in one year, makes 11820; which divided by 620, makes 73 dayes, the value of that fraction.

Example.

$$\begin{array}{r}
 324 \\
 35 \\
 \hline
 1620 \\
 1944 \\
 972 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 480 \text{ Dayes} \\
 118260 \text{ (73)} \\
 16220 \\
 16 \\
 \hline
 \end{array}$$

118260

I would change 256 : 5292 parts of a pound into pence, multiply the Numerator 756 by 240 pence, makes 8440, which divide by the denominator 5292, and the quotient is 34 pence, 1512 : 5292.

Example.

$$\begin{array}{r}
 756 \\
 240 \\
 \hline
 30240 \\
 1512 \\
 \hline
 181440
 \end{array}
 \quad
 \begin{array}{r}
 151 \\
 22082 \\
 181440 \\
 52922 \\
 529
 \end{array}
 \quad
 \begin{array}{l}
 d. \\
 (34, 1512:5292)
 \end{array}$$

12 Rule. *Questions of Fraction.*

What number is that to the which if you do

do add 3:4, the Totall will be 5:6 of a pound? Answer, Reduce them to one Denomination, and they are for 3:4 of a pound 18:24, and the 5:6 are 20:24, from which substract 18, rest 2:24 of a pound, or 20 pence, The proof, Take 3:4 of a pound, which is 15 shillings, and add 20 pence to it, and the totall is sixteen shillings eight pence, which is 5:6 of a pound.

Example.

N:D.		s:	d.
18	3:4	15	0
20	5:6	1	8
<hr/>		<hr/>	
2	24	16	4

2 Example.

What number is that from which if you do substract 8.12, the remainder will be 6.10? Answer, Reduce them, and add them both into one Totall, makes 152.120 of a pound for the number you do seek.

The proof in coyn; 152.120 of a pound is 304 pence, and 8.12 of pound, is 160 pence, which taken from 304, leaves 144 pence remaining, which is 6:10 of a pound,
or

or twelve shillings, as appears by the work.

$$\begin{array}{r}
 80 \quad 8: \quad 12 \quad 152 \quad 304 \quad 2 \quad s. \\
 72 \quad 6: \quad 10 \quad 2 \quad 160 \quad 244 \quad (12 \\
 \hline
 122
 \end{array}$$

$$152 \quad 120 \quad 304 \quad 144 \quad x$$

What number is that which being multiplied by 3:5, the Product will be 9:20? Answer, divide 9:20 by 3:5, and the Quotient is 45:60, or 3:4. For the Proof multiply 108 pence which is 9:10 of a pound, by 240, the product is 25920; which divide by 144, or 3:5, which is twelve shillings, makes 180 pence, or 3:4 of a pound.

3 Example:

$$\begin{array}{r}
 45 \quad 2250 \quad d. \quad 108 \\
 9 : 20 \quad 21920 \quad (180 \quad \text{---} \quad 240 \\
 3 : 5 \quad 24444 \quad \quad \text{---} \quad 4320 \\
 60 \quad 144 \quad \quad \text{---} \quad 216 \\
 x \quad \text{---} \quad \text{---} \\
 25920
 \end{array}$$

Example.

What number is that, which being divided by 7:8, the quotient will be 4:5? Answer, Multiply 7:8 by 4:5, the Product is 28:40, or 7:10, which makes fourteen shillings.

The proof in Coin 7:8, which is 210 pence, by 4:5, which is 192 pence, and the Product

Fractions.

141

Product is 40320; which divide by 240, makes 168 pence, or 14 shillings? behold the example following.

Example.

s.	d.	s.	
7:8 or 17	6	4:5 or 16	192
12		12	210
<hr/>		<hr/>	
40			1920
17		32	384
<hr/>		16	<hr/>
210			40320
<hr/>		92	<hr/>

r	d.	4	s.
2698	(168	268	(14
40320		523	
84440		r	
38			

2/10

Rules of Practice.

Rules of Practice by the first Table.

TO work by the Aliquot parts of a pound, search in the first Table for your given price, and by that number found, divide your number given, and the quotient is your answer in pounds, and the remainder is the fraction of one pound.

But if the given price be not found exactly at the first entrance, then find two or more numbers, to make the given price, and then work as followeth.

Example.

If one yard cost three shillings four pence, what will 7859 yards cost at that rate: I enter the Table, and against three shillings four pence, I find 1:6 of a pound; wherefore I divide 7859 by 6, makes 1309 pound, 5:6 of one pound, or sixteen shillings eight pence.

7859	l.	s.	d.
6666	(1309	5:6 or 16	8

The

The first Table.

The second Table.

<i>The Aliquot parts of a pound.</i>				<i>Shillings.</i>			
<i>s.d.</i>	<i>par.</i>	<i>s.d.</i>	<i>par.</i>	<i>s.</i>	<i>par.</i>	<i>s.</i>	<i>par.</i>
1	240	1.4	15	1	$\frac{1}{2}$	11	$5\frac{1}{2}$
2	120	1.8	12	2	$\frac{1}{10}$	12	6.
3	80	2.0	0	3	$\frac{1}{2}$	13	$6\frac{1}{2}$
4	60	2.6	8	4	$\frac{1}{2}$	14	7.
5	48	3.4	6	5	$\frac{1}{2}$	15	$7\frac{1}{2}$
6	40	4.0	5	6	$\frac{1}{2}$	16	8.
8	30	5.0	4	7	$\frac{1}{2}$	17	$8\frac{1}{2}$
10	24	6	8	8	$\frac{1}{2}$	18	9.
1. 0	20	10 0	2	9	$\frac{1}{2}$	19	$9\frac{1}{2}$
1. 3	16	20.0	1	10	$\frac{1}{2}$	20	10

Divisors.

Multipliers.

At sixteen pence an ell what will 89 6 ells cost? I find for sixteen pence my Divisor to be 15, and so dividing 89 6 by 15, the quotient is 598 pound, 6:15, or 2:5, which is eight shillings.

Example

Example:

$$\begin{array}{r}
 \times 2 \\
 242 \quad \text{l.} \\
 8076 \quad (598 \text{ 6: } 15, \text{ or } 2: 5 \text{ is } 8 \\
 \times 555 \\
 81
 \end{array}$$

Add a Cypher to your number given, and the last figure of your quotient will be primes, every one in value two shillings, and the remainder is the Fraction of a prime, always less then two shillings. In the first example, the remainder was 5: 6 of one pound, but if you add a Cypher, the quotient will be 1309 pound, 8 primes, or 16 shillings, and the remainder is 2: 6 of one prime, or 1: 3, which is 8 pence.

$$\begin{array}{r}
 \times 52 \quad \text{l.} \quad \text{s.} \quad \text{d.} \\
 78590 \quad (1309 \text{ 8 } 1: 3 \text{ or } 16 \text{ 8} \\
 66666
 \end{array}$$

At 2 shillings 6 pence a pound pepper, what will 2436 pound cost? find 2 shillings, 6 pence 1:8 of a pound, wherefore add a Cypher, and divide by 8, makes 304 pound 10 shillings.

$$\begin{array}{r}
 \times 4 \quad \text{l.} \quad \text{s.} \\
 24360 \quad (304 \text{ 5 or } 10 \\
 8888
 \end{array}$$

At

At eight pence a pound Ginger, what will 77856 pound cost? Divide by 30, adding a cypher, makes 2595 pound, two primes, or four shillings.

12r	l.	1	s.
778560	(2595	3 or 4	
333330			

At 7 pence a pound Sugar, what shall 23459 pound cost? For 12 pence divide by 20, makes 1172 pounds, 9 primes 1: 2, or 19 shillings: then for the rest of your given price, which is 5 pence, take 48, and divide, and the quotient is 488 pounds, 7 primes, which added together into one sum, makes the totall 1691 pounds, 13 shillings 7 pence.

Example.

234590	l.	1
222220	(1172	9

431			
42254	l.	1	
234500	(488	7	7:14
48888			

414	l.	s.	d.
	1172	19	0
	488	14	7
The sum.	1661	13	7
	H		Ar

At six shillings 8 pence a pound Cloves, what will 3769 pound weight cost? Divide by 3, makes 1256 pounds, 3 primes 1:3, or 6 shillings 8 pence.

	l.	s.	d.
XXII			
37690	(1256	3	1:3, or 6
30333			8

At 22 pence an ell of Holland; what will 3768 ells cost? For 20 pence divide by 12, makes 314 pound, and for 2 pence by 120, makes 31 pound, four primes, or 8 shillings; the totall is 345 pounds, eight shillings.

	l.		l.	s.
XVIII		XXIV		
37689	(314	37680	(31	4
XXXX		XXXXX		
XX		XX		

314	0
31	8
345	8

If one ell of Holland cost 20 pence, how many ells shall I buy for 345 pound? multiply 345 by the price, which is 1:12, or by

12, makes 4140 ells, the sum desired:

345	56	1.	
12	4140		(345 The proof.
<hr/>			
690	21		
345			
<hr/>			
4140			

If one ell of Ozenbrigs cost 8 pence, what sum of ells will 78 pounds buy me : multiply by 30, makes 2340 ells.

	78	
	30	
	<hr/>	
	2340	ells.
78		
15	22	ells.
<hr/>		
390	2270	(78
78	155	
	2	
<hr/>		

1170

At 15 pence an ell of Canvas, how many ells will 100 pound buy? Multiply by 16. makes 1600 ells

If one ell of parchmen lace cost one penny, how many ells shall I have for 73 pounds : multiply by 240, makes 17520 ells.

H 2

Example

Example.

$$\begin{array}{r}
 240 \\
 73 \\
 \hline
 720 \\
 1680 \\
 \hline
 17520
 \end{array}
 \qquad
 \begin{array}{r}
 7 \quad l. \\
 17520 \quad (73 \\
 2440 \\
 2
 \end{array}$$

If one Acre of land be five shillings, how many Acres may I have for 132 pound? Multiply by 4, makes 528 Acres.

$$\begin{array}{r}
 132 \\
 4 \\
 \hline
 528 \text{ Acres.}
 \end{array}$$

The Rule of Practice by the second Table.

If the price given be any number of shillings, search in the second Table for the price given, and by the number there found, multiply your number of yards, ells, pounds or pieces and cut off the last figure with a dash of the pen for primes, every one in value two shillings, and the product is the sum of pounds and shillings that your given number will cost.

Example.

At two shillings an ell of Holland, what will

will 956 ells cost? In the second Table I find the tenth of the number given, so that if you take the tenth of 956, it is 95 pounds, 12 shillings onely by cutting off the last figure with a dash of the pen.

| 946 Ells at 2 s. an ell, makes 95 | 6, or 12 s.

At 7 shillings an ell of Cambrick, what will 789 ells cost? Multiply by 3 1:2, or take half of the given number, and multiply the whole number given by 3, makes in one sum, cutting off the prime line, 276 pounds, 3 shillings.

Example.

789

3 1:2

2367

394 1:2

276 | 1:2

Also 1240 ells at 7 s.

434 l.

3 1:2

3720

620

434 | 0

H 3

At

At 25 shillings a piece Raisons, what will 356 pieces cost? take always half the number of shillings of your given price for your multiplier, and work as before, and the Product is 456 pounds, 0 prime.

Example.

$$\begin{array}{r}
 356 \\
 12 \text{ } 1:2 \\
 \hline
 4:72 \\
 178 \\
 \hline
 445 \text{ } 10
 \end{array}$$

Also 75032 pieces at 26 shillings a piece.

$$\begin{array}{r}
 75032 \\
 13 \\
 \hline
 225096 \\
 75032 \\
 \hline
 97541 \text{ } 6
 \end{array}$$

If one barrell of Sope cost 47 shillings, what will 3584 barrels cost? Multiply by 23 1:2, makes 8422 pounds 8 shillings.

Example

Example.

$$\begin{array}{r}
 3584 \\
 23 \text{ } 1:2 \\
 \hline
 10752 \\
 7168 \\
 1792 \\
 \hline
 8422 \text{ } 4
 \end{array}$$

At three pound six shillings a Barrell,
what will 124 cost ?

$$\begin{array}{r}
 124 \\
 33 \\
 \hline
 372 \\
 372 \\
 \hline
 409 \text{ } 2
 \end{array}$$

If one Acre of Land cost 6 pound 8 shillings, what will 758 Acres cost ? Multiply by 64 shillings, which is half the price, the
Product

H 4

Product is 4851 pounds, four shillings, or two primes.

$$\begin{array}{r}
 758 \\
 64 \\
 \hline
 3032 \\
 4548 \\
 \hline
 4851 \frac{1}{2}
 \end{array}$$

How to prove the last question, or any other of like kind. If one Acre of Land cost 6 pounds 8 shillings, how many Acres shall be bought for 4851 pounds, 4 shillings? Divide your number of pounds and shillings by one half of the number of shillings in the price given, adding a Cypher to your number of pounds, and the quotient is the number of Acres of Land the said sum will buy at that rate.

Example.

The given sum is 4851 pounds, 2 primes, or 4 shillings; which divided by half the given price, which is 64 shillings, brings into the quotient 758 Acres, and so of any other sum.

5
27 Acres
48512 (758
6444
66

A Merchant bought Cambricks cost him 855 pounds, 18 shillings; the question is, How many pieces he had, paying for every piece 27 shillings? Answer, Add a cypher to your number given, which is 855 pounds, 9 primes, makes 85590, which divide by half the price given, which is 13 1:2; or divide by 135, the quotient will be 634 pieces: now the reason wherefore a cypher is added to the number given, having 9 primes in it, is, because I divide by 13 1:2, which hath one fraction; and this rule is general.

Example.

What cost 634 pieces at 27 shillings?

<p>454 pieces: 85590 (634 13558 135 3</p>	<p>634 13 1:2 ----- 1902 634 317 -----</p>
---	--

The Proof. 855 19

H 5.

How

How to prove one question in the Rules of Practice by the working of another.

If you will prove any question in the Rules of Practice, by a second example, mark the Complement, or want of your given price from one pound, and work the same number at that price which doth want, and the totall of those two summes added together, makes the just number of pounds of the sum given

Example.

At sixteen shillings a piece of Eustian, what will 320 pieces cost? Answer, multiply 8, makes 256 pounds, 0 prime.

Again, sixteen shillings your given price wanted four shillings of one pound, wherfore work 320 at 4 shillings, which is multiplied by two primes, makes 64 pounds, 0 prime, the totall is 320 pounds, which proves the former work.

320	320	256
8	2	64
<hr/>		
2560	64 0	320 pounds.

Example.

At 13 shillings a piece of Lawn, what will 753 pieces cost? 752 by 6 1:2, makes 488 pounds, 8 primes.

At

At 7 shillings a piece, what 752 pieces?
 752 by 3 1:2, makes 253 pounds, 2 primes,
 totall is 752 pounds.

Example.

$ \begin{array}{r} 752 \\ 6 \text{ } 1:2 \\ \hline 4512 \\ 376 \\ \hline 488 \overline{)8} \end{array} $	$ \begin{array}{r} 752 \\ 3 \text{ } 1:2 \\ \hline 2256 \\ 376 \\ \hline 263 \overline{)2} \end{array} $
$ \begin{array}{r} 2632 \\ 4888 \\ \hline 752 \overline{)0} \end{array} $	

Rules

Rules of Practice by the third Table, the most excellent of all the other.

The third Table. The third Table.

*The Aliquot parts
of 24.*

*The parts of a
shilling*

d.	par.	d.	part.	d.	part.	d.	yart.
1	24.	13	2. 24	$\frac{1}{4}$	48	72.	12
2	12.	14	3. 4	$\frac{1}{2}$	24	81.	$\frac{1}{2}$
3	8.	15	2. 8	$\frac{2}{3}$	18	92.	4
4	6.	16	3. 3	$\frac{3}{4}$	16	1012.	3
5	12.8	17	3.4.8			112.	3.6
6	4.	18	2. 4	d.		12	<i>Idem.</i>
7	8.6	19	2.8.6	1	1		
8	3.	20	2. 3	2	2		
9	4.8	21	2.4.8	3	3		
10	4.6	22	2.4.6	4	4		
11	3.8	23	2.3.8	6	6		
12	2.	24	$\frac{1}{12}$				

Divisors.

Divide

Divide the number of ells, yards, pounds, or pieces given by the number, or numbers found in the third Table, always cutting the last figure for primes, if that any remain after Division, it is always less then one prime, or two shillings.

Example.

At 3 pence a pound Licoras : what will 123728 pound cost? Answer, for 3 pence in the third Table, I find my Divisor to be 8, by which I divide my given number, makes 1546 pounds, 6 primes, or 12 shillings.

4	84		l.	1	s.
223728		(1546	6	or 12	
88888					

At 9 pence the pound Ginger, what will 8768 pound cost? For 6 pence divided by 4 makes 219 l. 2 primes, then for 3 pence the residue of the price, divide by 8, makes 109 pounds, 6 primes, totall is 328 pounds, 16 shillings. Or otherwise divide by 4 for 6. d. and then take half that product for 3 pence, and add them into one sum, as before.

Example.

3		l.	1	4		l.	1
8768	219 2	8768	(109	6			
4444		8888	219	2			
			<hr/>				
			328	8			
					At		

At 11 pence the yard Canvas, what will 2356 cost? For 8 pence divide by 3, makes 78 pound, 5 primes, 1:3 or 8 pence; and for 3 pence divide by 8, makes 29 pound, 4 primes, 1:2, or 12 pence; the totall is 107 pounds, 19 shillings, 8 pence.

221 l. d.	534 l.
2356 (78 5 8	2356 (29 4 1:2
333	808

l.	s.	d.
29	9	0
78	10	8
107	19	8

A second Example the proof of the last.

At 13 pence a pound fine Sugar, what will 2356 pounds cost? for 12 pence divide by 2, makes 117 pounds, 8 primes, or 16 shillings: then for 1 peny divide by 24, makes 9 pounds, 8 primes, 4 pence, the totall is 127 pounds, 12 shillings, 4 pence; which added to the former summe in the last example, makes 235 pounds, 12 shillings; and so much will 2356 pounds cost, at two shillings a pound, because the two given prices make one prime, or two shillings.

Example.

Example.

xl	l.			xl	l.		d.
2356	(117	8	d.	2356	(9	8	4
2222	9	8	4	244			
<hr/>				2			
	127	6	4				

127	12	4
107	19	8
<hr/>		
235	12	0

At 16 pence a pound Sugar, what will 78432 pound cost; work for 8 pence, and double the sum, makes 5228 pounds, eight primes, or sixteen shillings.

At 8 pence a pound Almonds, what will 78432 pound cost? divide by 3 makes 2614 pound 4 primes, or 8 shillings; which added with the former Example, makes 7843 pound, 2 primes, which is the price that 7843 pound will cost at 2 shillings a pound, and proves both examples true.

Example.

Example.

$\begin{array}{r} \text{r} \text{ r} \\ 78432 \\ 33333 \\ \hline \end{array}$	$\begin{array}{r} \text{l.} \\ (2614 \\ 2614 \\ 5228 \end{array}$	$\begin{array}{r} \\ 4 \\ 4 \\ 8 \end{array}$
$\begin{array}{r} \text{r} \text{ r} \\ 78432 \\ 33333 \\ \hline \end{array}$	$\begin{array}{r} \text{l.} \\ (26 \cdot 4 \\ 5.228 \end{array}$	$\begin{array}{r} \text{I} \\ 4 \\ 8 \end{array}$
<hr/>		
7843		2

At 18 pence a pound Comfits, what will 78432 pound cost? For 12 pence take half the given number; and for 6 pence take half of that sum, which added into one totall, makes 5882 pounds, 4 primes.

$$\begin{array}{r}
 78432 \\
 \hline
 39216 \\
 19608 \\
 \hline
 58882 \mid 4 \text{ Primes.}
 \end{array}$$

The total is 582 l. 8 s. 0 pence.

At 6 pence a pound small ginger, what wil 78532 li. cost? Divide by 4, makes 1960 li. 8

Is 8 primes, or 15 shillings ; which added to 5882 pounds, 8 shillings, makes 7843 pounds, 2 primes, the price at 2 shillings.

32	l.	1	5882	4
78432	(1960	8	1960	8
4444				
<hr/>				
	Proof	7843	4	

These Tables may serve also if the price be above two shillings, or one prime ; as if you shall say, at three shillings six pence an ell, what 782 ells : here I see the given price is compounded of 3 times six pence ; wherefore I work first for six pence, in dividing by 4, makes 16 pounds 11 shillings, which multiply by 7. makes 136 pounds 11 shillings for the price of 782 ells at 3 shillings 6 pence the ell.

At six pence an ell, what 782 ells : find for six pence, 19 pounds 11 shillings, which added to the former sum in the last example, makes 156 pounds, 8 shillings, which is the sum that 782 ells will cost at foure shillings the ell.

Example.

Example.

32	l.	1.			s.
782	(19	5		1:2	or 11
414					
1.		s			
19		11		782	
7		7		2	
136	17	The proof.	256	4	

At four shillings eight pence the ell Holland, what will 2148 ells cost? I find four shillings eight pence to be 14 groats, so dividing by 6 for one groat, makes 35 pounds 8 primes: which multiply by 14, makes 501 pounds, 4 shillings.

				358
				14
34	l.	1	—	—
2148	(35	8		1432
666				358

The Total. 501, 2 Primes.

At 15 pence a gross of points, what will 2256 gross cost? 15 pence is 5 times 3 d. and so I divide 2256 by 8, makes 28 pounds, 2 primes; which multiply by 5, makes 141 pounds.

62 l. 1
2256 (28 2
888

282
5

1410

Rules of Practice by the fourth Table.

If the number of the price given be any Aliquot part of a shilling, enter the fourth Table, and there you shall find a Divisor, by the which if you divide your number given, the Quotient will be shillings, and the remainder parts of one shilling. Then to convert your shillings into pounds, take one half of the quotient, cutting off the lower number for shillings, and the rest is pounds.

Example:

At 3 farthings a pound Prunes, what will 756 pound weight cost? Search in the fourth Table, and you shall find 16 for your divisor; by the which if you divide 756, the quotient is 47 shillings, 1:4, or 3 pence.

xx4 s.	x 4	s.
756 (47 1:4	897652	(56103 1:4
166	266666	-----
1	xxxx	2805 3 3 d.
		At

At one half peny a pound Copperas, what will 8756 pounds cost? Divide by 24, makes 364 shillings, of which the one half cutting off the 4 shillings, is 18 pounds, 4 shillings, and 20 half pence remaining, The totall is 18 pounds, 4 shillings, 10 pence.

12

	s.	l.	s.	d.
8756	364	18	4	10
2444	18 4			

22

At four pence a pound Licoras, what will 789 pounds cost? Divide by 3, makes 13 pounds, shillings.

Again, at six pence a pound, what will 8579 pounds cost? Divide by 2, makes 214 pounds, 9 shillings 6 pence.

1 Example.

x	s
789	(:63
333	— — —
	13 l. 3. s.

2 Example.

xxx	s.	d.
8579	(4289	1:2 or 6
2222	— — — — —	
	214 l. 9. s. 6 d.	

Generall Rules of Practice without Tables.

Multiply your number given by the sum of pence, that one yard, piece, pound or ell doth cost, and the product will be the sum of pence

pence the whole number given will cost; and then divide that sum of pence by four, makes the Quotient Groats, and if any remain, they are pence, always less then four pence, or one groat. And secondly, again divide, the Quotient will be pounds, and primes, every prime in value two shillings, and the remainder is Groats, always less then groats, or one prime, which is in value 2 shillings.

At 17 pence an ell Canvas, what wil 3245 ells cost? Multiply by 17, makes 55165 pence, which divided by four, makes 13791 Groats, and there will remain one penny. Secondly, divide that quotient again by six, makes 229 pounds, 8 primes, and the remainder is 3 groats, or one shilling; and so the totall is 229 pounds, 17 shillings, one peny.

Example.

3245			
17		d.	
22715	133	1	Groats.
3245	55165		(13791
55165	44444		

Groats.

2553	l.		s.	d.
23792	(229	8	or 17	1
6666				

At

At 3 shillings 7 pence a yard Holland, what will 752 ells cost? Multiply 752 by 43 pence, the price of one ell, makes 32336; which divided as is before taught, makes 134 pound, 14 shillings, 8 pence.

Example:

752		
43		
<hr style="border: none; border-top: 1px solid black; margin: 5px 0;"/>		
2256	x	<i>Groats.</i>
3008	32336	(8084
<hr style="border: none; border-top: 1px solid black; margin: 5px 0;"/>		
32336	4444	

<i>Groats</i>			
3242	l,		d.
8084	(134	7	8
6666			

At 7 shillings 11 pence the ell Cambricks, what will 856 ells cost. Reduce 7 shillings 11 pence into pence, makes 95 pence; by which multiply 856, makes 81320: which divided as before, makes 338 pound, 16 shillings, 8 pence.

Example,

Example,

856	
95	<i>Pence.</i>
<hr/>	
4280	81320 (20330
7704	4444
<hr/>	
81320	

Groats.

2552	<i>l.</i>	<i> </i>	<i>d.</i>
20330	(338	8	8
6666			

At 2 shillings 11 pence an ell of Holland,
what will 7856 ells cost? multiply and di-
vide as is before taught, makes 1145 *l.* 13
shillings, 4 pence.

Example

Example.

$$\begin{array}{r}
 7856 \\
 35 \text{ pence.} \\
 \hline
 222 \\
 39280 \quad 274960 \quad (68740 \\
 2356:8 \quad 44444 \\
 \hline
 274960 \quad \text{Groats.} \\
 2344 \quad l. \\
 6740 \quad (1145 \quad 6 \\
 66666
 \end{array}$$

At 17 shillings 7 pence a yard Broad-cloth, what will 7856 yards cost? Multiply by 211, the price of one yard and divide as before, makes 6906 pounds, 7 primes.

Example.

$$\begin{array}{r}
 7856 \\
 212 - \\
 \hline
 22 \quad \text{Groats.} \\
 7856 \quad 2657626 \quad (414404 \\
 7856 \quad 4441441 \\
 15712 \\
 \hline
 1657616 \\
 \text{Groats.} \\
 542 \quad l. \quad 1 \quad d. \\
 14404 \quad (6906 \quad 7 \quad 8 \\
 66666
 \end{array}$$

If your given price have any farthings in it, then reduce your price into farthings, and multiply your given number by those farthings, and the product will be the number of farthings which your summe will cost; then divide that Product by 16, makes the quotient Groats, and the remainder will be farthings, alwayes lesse then sixteen, or one Groat. Secondly, divide that quotient of Groats by 6, makes pounds and primes as before.

Example.

At 5 shillings, 1 penny, 1 half peny an ounce plate, what will 356 ounces cost? Reduce 5 shillings, 1 penny, half-penny, into farthings, makes 246 farthings: by which multiply 356, makes 87576 farthings; which divided by 16, makes 5473 Groats, and 8 farthings will remain; which divide again by 6, makes 91 pounds, 2 primes, & 1 groat will remain, totall is 91 pounds, 4 shillings, 6 pence.

At 6 shillings 9 pence farthing an ounce of gilt Plate, what will 3542 ounces cost? multiply your shillings by 48, the farthings which are in one shilling, makes 288. to the wick add 37 Farthings, which are in 9 pence farthing, makes 325 farthings; and then work as before is taught, and you shall find 1199 pounds, 2 shillings 3 pence, half-penny.

Example.

3542	Farthings
325	x xi
<hr/>	38714
27710	xxsxxs (71946
7084	xxss
10626	xxxx
<hr/>	
1151150	
2554	l. l
72046	(1199 l
66666	

Another way to work Practice.

Divide your number of yards, ells, or pieces, by 240, adding a cypher to your number given, and then multiply the quotient by your price, and the product is the summe of pounds and shillings that the given number will cost.

At 17 pence an ell Canvas, what will 7848 ells cost? Add a cypher, and divide 78480 by 240, and the quotient will be 32 pounds, 7 primes, which multiply by 17 pence, the price makes 555 pounds, 9 primes, or 18 shillings.

Example:

Rules of Practice.

16.

Example.

$$\begin{array}{r}
 \text{z} \\
 66 \\
 78480 \text{ (32 | 7)} \\
 24440 \\
 \text{z z} \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 327 \\
 17 \\
 \hline
 2289 \\
 327 \\
 \hline
 55519
 \end{array}$$

At 3 shillings 5 pence an ell of Holland, what will 702 ells cost? Divide 7020 by 240 makes 2 pounds, 9 primes, and there will remain 6; which multiply by 41 pence, the price of one ell, makes 118 pounds, 9 primes, or 18 shillings, and then the 6 ells makes 1 pound 6 pence; the totall is 119 pounds, 18 shillings 6 pence.

Example.

$$\begin{array}{r}
 226 \\
 7020 \text{ (2 | 9)} \\
 2440 \\
 \text{z} \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 2 | 9 \\
 41 \\
 \hline
 29 \\
 216 \\
 \hline
 \end{array}$$

			189 9
s.	d.	l.	s.
3	5	18	18
	6	1	00
<hr/>		<hr/>	
20	6	119	18
		1	2

At

**INCORP
PAGINA**

RECT ATION

Example.

3542	Farthings
325	x xi
<hr/>	38714
27710	xxvxxv (71946
7084	xxvxxv
10626	xxxx
<hr/>	
1151150	
2554	l.
72046	(1199 l
66666	

Another way to work Practice.

Divide your number of yards, ells, or pieces, by 240, adding a cypher to your number given, and then multiply the quotient by your price, and the product is the summe of pounds and shillings that the given number will cost.

At 17 pence an ell Canvas, what will 7848 ells cost? Add a cypher, and divide 78480 by 240, and the quotient will be 32 pounds, 7 primes, which multiply by 17 pence, the price makes 555 pounds, 9 primes, or 18 shillings.

Example:

Rules of Practice.

16

Example.

$$\begin{array}{r}
 78480 \text{ (3217)} \\
 24440 \\
 \hline
 22
 \end{array}
 \qquad
 \begin{array}{r}
 327 \\
 17 \\
 \hline
 2289 \\
 327 \\
 \hline
 55519
 \end{array}$$

At 3 shillings 5 pence an ell of Holland, what will 702 ells cost? Divide 7020 by 240 makes 2 pounds, 9 primes, and there will remain 6; which multiply by 41 pence, the price of one ell, makes 118 pounds, 9 primes, or 18 shillings, and then the 6 ells makes 1 pound 6 pence; the totall is 119 pounds, 18 shillings 6 pence.

Example.

$$\begin{array}{r}
 226 \\
 7020 \text{ (219)} \\
 2440 \\
 \hline
 2
 \end{array}
 \qquad
 \begin{array}{r}
 219 \\
 41 \\
 \hline
 29 \\
 216 \\
 \hline
 18919
 \end{array}$$

s.	d.	l.	s.	d.
3	5	118	18	0
	6	1	00	6
<hr/>		<hr/>		
20	6	119	18	6
		12		

At

At 19 pence an ell of Holland, what will 32544 ells cost? Divide 325440 by 240, makes 1356 : which multiply by 19 pence, the price of one ell, makes 2576 pounds, 8 shillings.

xx
83
325440 (1356
244140
222

135 | 6
1:9

12204
1356

2576 | 4

The Golden Rule.

Of single proportion Direct,
or *the Rule of Three*, called
The Golden Rule.

THe Rule of Three, or Rule of Proportion, of all others is the most excellent, and therefore (not without desert) commonly called the *Golden Rule*; the working is performed and proved by Multiplication and Division, the use thereof is, their numbers or terms being given, to find a fourth proportionall; all the difficulty is in the right placing the terms: For the better understanding of which, these Rules and examples following are necessary, as suppose four men spend eleven shillings a day, how much will eight spend according to the same proportion, place your number thus,

$$\begin{array}{rcl} 4 & \text{---} & 11 \text{ shillings.} \\ 8 & \text{---} & \end{array}$$

Then multiply the second number by the third, and divide the product by the first,
L 3
the

the quotient will be the number desired, that is to say, Multiply 11 the second number, by 8 the third, the product is 88, as in this example.

$$\begin{array}{r}
 11 \\
 8 \\
 \hline
 \text{Product.} \quad 88
 \end{array}$$

Then divide the product by 4 the first number, the quotient is 22, as in this example,

$$88 \text{ (22 quotient.)}$$

44

The proportionall number desired, which place thus,

$$\begin{array}{r}
 4 — 11 \text{ shillings.} \\
 8 — 12 \text{ shillings.}
 \end{array}$$

Another way to place the term at length.

The second Example.

If 26 men make a Wall of 364 foot in a day, how many foot will 364 men make?

Place your number thus,

$$26 -- 364 : 364 :$$

Then multiply the second number by the third, that is, multiply 364 by 364, the product is 132496, as appears in this example.

$$\begin{array}{r}
 364 \\
 364 \\
 \hline
 1456 \\
 2184 \\
 1092 \\
 \hline
 \end{array}$$

Product. 132496

Then divide the product by the first, that is, divide 132496 by 26, the quotient is 5096, as appears in this example.

$$\begin{array}{r}
 23 \\
 68 \text{ quotient.} \\
 232496 \text{ (5096)} \\
 28286 \\
 2
 \end{array}$$

So that according to the Rule of Proportion, if 26 make 364, 364 will make 5062, which place either thus,

$$\left. \begin{array}{l} 26 \text{ --- } 364 \\ 364 \text{ --- } 5099 \end{array} \right\} \text{ or thus, } 26 \text{ -- } 364 : 364 : 5096$$

The third Example.

If 45 pound will pay 3560 men for one day, how many dayes will 364 pounds pay them. Multiply the second 3560 by the third 364, the product is 1295840, as in this example,

I. 4.

3560

3560

364

14240

21360

1080

Product. 1295840

Then divide the product of the second by the first number 45, the quotient will be 28796, and 20 pounds overplus, as in this example.

(2

33428

47739 *quotient.*

2295840 (28796

455558

4444

So that if 45 pounds will pay 3560 men for one day, 362 pounds will pay 28796 men for a day, and 20 pounds to spare, 28796 being the fourth proportionall number or term desired: or if the question be desired for more then one day, it is but multiplying the fourth term by the number of dayes desired, as if 5 men make 34 pieces in one day, how many pieces will 15 men make in 12 dayes? First find out the fourth proportionall

tionall number, and multiply it by 12, the product is the term desired, that is, first multiply the second term 34 by the third 15, the product is 510, then divide the Product by the first term 5, the quotient is 102, then multiply the quotient by 12, the addition of dayes, and the Product is 1224, the term desired: for the finding out the fourth proportionall number in measure, weights, time, and motion, the examples following will sufficiently demonstrate.

I Example:

If 90 yards of Cloth cost 23 pounds, what cost 346 yards? Multiply 346 by 23, the product is 7958, as in this example.

$$\begin{array}{r}
 346 \\
 23 \\
 \hline
 1038 \\
 692 \\
 \hline
 7958
 \end{array}$$

Then divide the product by the first number 90, the quotient is 88 l. and 38:90 of a pound, as in this example.

73 l.

7058 (88, 38:90 of a l.

990

If 124 pounds gain 37 pounds 12 shillings,
what will 758 pounds gain?

37 1: 2

758

20

752

752

1:16

140

240

1

2281

355

74052

l.

356

570016 (4595 112:124

495

224444

2222

570016

22

*How to work this last Example, and all other,
after a more brief and exact manner.*

Divide the third number by the first, and
by the quotient multiply the second, and
the product is the answer.

Example:

If 356 ells cost 137 pounds, 12 shillings,
9 pence, what cost 2848 ells?

137

$$\begin{array}{r} 0 \\ 2848 \end{array} (8$$

$$\begin{array}{r} 137 \quad 11 \quad 9 \\ 8 \end{array}$$

$$\begin{array}{r} 1096 \quad 96 \quad 72 \quad (6 \\ 5 \quad 6 \quad 22 \end{array}$$

$$1101 \quad 2$$

Totall is, 1101 l. 2 s. od.

First, divide 2848 by 356, the quotient is 8 : by which I multiply 137 pounds 12 shillings 9 pence, the Products are 1096 pounds, 96 shillings, 72 pence ; then divide 72 by 12, is 6 shillings ; which added to 96 shillings, makes 102 shillings, or 5 pounds 2 shillings ; the totall is 1101 pounds 2 shillings, as before.

Example.

If 124 yards cost 17 pounds ten shillings x penny, what cost 744 yards ?

744 (6
124

l.	s.	d.
17	10	1
6		
<hr/>		
102	60	6
3		
<hr/>		
105	0	6

If 32 pieces of Raisons cost 19 pounds, two shillings, two pence, what will 112 pieces cost at that rate?

3 Example.

16
212 (3 $\frac{1}{3}$, or $\frac{1}{2}$
32

l.	s.	d.
19	2	7
3 $\frac{1}{2}$		
<hr/>		
57	9	1:2
9	10	
<hr/>		
66	19	1:2

If 356 pieces cost 137 pounds, 12 shillings, 9 pence, what will 2848 pieces cost at that rate?

The Golden Rule.

171

33033
2848

137 12 9

20

2752

12

33032

20204

24404

10112

12202

20224

24404

66066

94077984

Example.

22

15924

22813720

356 | 94077984 (264264
00000000

71264264

2132132

14714

21

94077984

Example.

Example.

20 2 1 1
 2642640 (1101 1
 2444440
 2222

*How to know whether any question given
be to be answered by the Rule Direct,
or Converſed.*

By theſe notes following you ſhall find,
whether any queſtion propounded to be an-
ſwered by the Rule of Three Direct, or
Converſed; for always the third number is
the number whereon the queſtion depend-
eth, and is diſtinguiſhed from the other two
by ſome of theſe notes following.

*How much. How wide, }
 How deep. How long, } or ſuch like.
 How farre. What coſt. }*

And the anſwer is always more or leſſe,
ſo that if it be more, then the leſſer of your
two extreame numbers is the Diviſor: if leſſe,
then the greater of your two extreame numbers
is your Diviſor. If the number whereon the
queſtion is depending, be your Diviſor, then
the anſwer is by the converſe Rule, and you
muſt multiply your two former numbers for
Dividend. If the firſt number be the Divi-
ſor,

for, then the question is answerable by the direct Rule, and the product of the two later numbers is your Dividend.

Example.

If 13 Cannons spend 358 pounds of powder, what will 5 Cannons spend? Now here the question is, what 5 Cannons will spend. I answer, less then 13 pounds, wherefore by this Rule, the greater of the two extreames, 13 is the Divisor: wherefore I multiply 358 by 5, and divide by 13, makes 137 pounds, 6:13 that five Cannons will spend.

1 Example.

If 13 Cannons spend 358 pounds of powder, what will 5 Cannons spend?

358	p.	
5	- 400	l.
	1790	(137 9:13
1790	1333	
	xx	

2 Example.

I lent my friend 115 pounds for 7 months, and when I came to him to require the like kindness, he could lend me but 54 pound; the question is, how long he should forbear that 54 pounds to make a requitall, or to equall my time and kindness.

If

If 115 pounds require 7 moneths; what will 54 pound require? Here the answer in reason is, that 54 pounds must be longer time forborn then 115 pounds, and so the answer is more times then 115 pounds, so that I find the lesser of my extreames 54, is my Divisor, and the question answerable by the Rule conversed, so that I multiply 115 by 7, makes 805; which divided by 54, makes 14 moneths, 49:54 of a moneth, or 14 moneths, 25 dayes 23:25.

Example.

115	4	
7	269	Moneths.
805	805	(14 49:54
	544	
	5	
49		
28	2	
392	292	Days.
98	1372	(25 22:25)
1372	544	
	5	

4 Example!

A Captain of a Band of men is besieged in a City, having with him 7200 men, and his

his victuals will serve the whole Company but 7 moneths, and there is no hope left to have any fresh victuals untill 16 moneths; the question is, how many men he shall send away to make the victuals serve for 16 moneths? Answer, lesse then 7200 men.

If 7 moneths require 7200 men, how many will 16 moneths ask?

72 0	28	<i>Men.</i>
7		
50400	50400	(3150
	16666	
	XXX	

When Wheat was sold at three shillings eight pence the bushell, the penny loaf of bread weighed 6 ounces, what shal the same loaf of bread weigh when Wheat is sold for two shillings the bushell? I answer, more then 11 ounces.

If 44 pence give 6 ounces, what will 24 pence give?

44	2	<i>Ounces.</i>
6		
264	264	(11
	244	
	2	

If 356 men dig a Trench in 24 dayes, in how many dayes will 200 men make the same? Answer, in more dayes; 42 dayes, 17 hours, 7:25.

If 356 men require 24 days, how many will 100 men require?

$\begin{array}{r} 356 \\ 24 \end{array}$ <hr style="width: 100%;"/> $\begin{array}{r} 1424 \\ 712 \\ \hline 8854 \end{array}$	$\begin{array}{r} 1 \\ 8544 \\ 2200 \end{array}$	<i>Days.</i> (42 144:200
---	--	-----------------------------

$\begin{array}{r} 144 \\ 24 \end{array}$ <hr style="width: 100%;"/> $\begin{array}{r} 576 \\ 288 \\ \hline 3456 \end{array}$	$\begin{array}{r} 1 \\ 3456 \\ 2200 \end{array}$	<i>Hours.</i> (17 7:25
--	--	---------------------------

Or thus; Considering the numbers, 200 may be had in 356 once, therefore for 200 take 24 days; then for 156 take 18 days, totall 42 days; then there will remain 6 to be multiplied by 24, makes 144:200 parts of a day, as before.

If 112 pound cost 3 pounds 5 shillings 5 pence, what will 3136 pounds cost? Divide 3136 by 112, makes 28; which multiply by 3 pounds,

3 pounds 5 shillings 5 pence, makes 91 pounds, 11 shillings 8 pence.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
	28	28	28
	3	5	5
89			28
3136 (28	<hr/>		
1122	84	11	122
12	7	140	1
	<hr/>		
	91	11	8

If 100 pounds gain 7 pounds, what sum of money will gain 85 at that rate? Answer.

If 7 pounds require 100 pounds, what will 85 pounds require?

1132	<i>l.</i>	85
8500	(1214 2:7	100
7777		<hr/>
		8500

Or otherwise, divide 85 by 7, makes 12 1:7; by which multiply 100, makes 1214 pounds, 2:7 of a pound.

11	100	
85 (12 1:7	12	1:7
77	<hr/>	
	121 1/2	2:7

Or

Or otherwise, Divide 100 by 7, makes 14 1:7; by which multiply 85, makes 1214 pound, 2:7

Example:

32,
100 (14 27
77

85
14 2:7
<hr/>
340
85
24 1:7
<hr/>
1214 1:7

* Carseys at 54 shillings the piece, are put in Barter, at 3 pounds the piece, how shall Wooll worth 24 shillings the Tod, be set in Barter to make the bargain equall?

If 54 shillings be 60 shillings, what wil 24 shillings make?

Answer, for more then 24 shillings, and lesse then 54, so that 54 is the Divisor, and multiplying 24 by 60, makes 1440; which divided by 54, makes 26 shillings, 2:3 or 8 pence.

If 54 shillings be 60 shillings, what will 24 shillings make?

3	24
366	d 60
1440 (26 36:54, or 2:3, or 8	<hr/>
544	1440
	If

If 6 sheep cost 58 shillings, how many shall I buy for 124 pounds? Multiply 124 by 58, makes 7192; which divide by 6, makes 1198 sheep, 2:3

$$\begin{array}{r}
 124 \\
 58 \\
 \hline
 7192 \\
 620 \\
 \hline
 7192
 \end{array}
 \quad
 \begin{array}{r}
 1584 \\
 7192 \text{ (1198 2:3)} \\
 6526 \\
 \hline
 7192
 \end{array}$$

Or otherwise, divide 58 by 6, makes 9 2:3, by which multiply 124, makes 1198 2:3, as before.

Example.

$$\begin{array}{r}
 124 \\
 9 \text{ 2:3} \\
 \hline
 4 \\
 58 \text{ (9 2:3)} \\
 6 \\
 \hline
 1116 \\
 82 \text{ 2:3} \\
 \hline
 1198 \text{ 2:3}
 \end{array}$$

A Merchant at *Sivill* delivereth 1500 Rials, to receive for every 11 being a Ducat in *London* 5 shillings 10 pence sterling money, how much must he receive?

If

If 11 Ryals be 70 pence, what are 1500 Rials?

	Pence.
	11
474	2387
1500 (136 4:11	97450 (39 7
XXXX	24440
70	22

952

25

l. s. d.

9545 Total is 39 15 5

At 13 pounds in 100 pound profit, of what stock came 3274 pounds? Answer, Divide 3274 pounds by 113 pounds, makes 2879 pounds, 39:113 of a pound, adde two cyphers to the given number.

x 83

101039

l.

327400 (2897 39:113 of a pound.

123333

XXXX

12

A Merchant received for principall and gain 328, wherein he found he had gained clear 56 pounds, what did he gain upon the 100 pounds? Answer, Multiply 100 by 56, the gains makes 5600; which divide by 328, and the quotient is 17 pounds, 3:41 in smallest terms.

100

$$\begin{array}{r}
 100 \\
 56 \\
 \hline
 5600
 \end{array}
 \begin{array}{r}
 2324 \text{ l.} \\
 5600 \text{ (17.24:328, or 3:41 of a l.)} \\
 3288 \\
 32
 \end{array}$$

If 112 pounds cost 7 pounds, 6 shillings, how may I sell to gain 10 pounds upon the 100 pounds? Answer, Take the tenth part of 7 pounds, 6 shillings, or of 146 shillings, which is 14 shillings, 3:5 of a shilling; which added to the price, makes 8 pounds 7 pence, 1:5 of a penny.

$$\begin{array}{r}
 \text{l.} \quad \text{s.} \quad \text{l.} \quad \text{s.} \\
 7 \quad 6 \quad 7 \quad 6 \\
 20 \quad 146 \text{ (143:5)} \quad 14 \quad 3:5 \\
 \hline
 146 \quad 110 \quad 8 \quad 00 \text{ } 17 \text{ d. } \frac{1}{5}
 \end{array}$$

Example.

If 100 pounds exchange be 7 pounds 2 shillings, what is one pound? Answer, 71:100 parts of a pound: wherefore multiply 71 by 240, and divide by 100, makes 17 pence, 12:5 of a penny.

$$\begin{array}{r}
 71 \\
 240 \\
 \hline
 2840 \\
 142 \\
 \hline
 17040
 \end{array}
 \begin{array}{r}
 \text{l.} \quad \text{s.} \\
 17 \text{ } 40 \text{ } 100 \text{ } 1 \\
 71:100
 \end{array}$$

If

*How to find whether your numbers given
be proportionall, or not.*

Divide your third number by the first, and if the quotient be an even number, and nothing remain of your Dividend, then the first and third numbers are proportionall in whole numbers, as in the last example, the first number was 107, and the third number 321, so that in dividing the third number by the first, the quotient is 3 and 0 remains: wherefore I conclude, that the first and third numbers are proportionals in whole numbers, and that the third doth contain the first just three times, and so often must the fourth number sought for, contain the second; and I conclude, that 3 times 17 pounds 12 shillings, which is 52 pounds 16 shillings, is the fourth proportionall number sought, as appears by the ordinary form of work in the last example.

	l.	s.
	17	12
321 (3	3	3
107	<hr/>	
	52	16

K

16

If 36 ells of cloth cost 13 pounds, 4 shillings, 1 penny, what will 432 ells cost at that rate? Divide 432 by 36, makes 12; by which multiply your second number 13 pounds 4 shillings one penny, makes 158 pounds, 9 shillings.

7	13	4	1
432	12	12	12
366	28	9	0
3	13		
	158	9	0

A. doth lend unto *B.* 600 pounds for 8 moneths, the question is, how much *B.* shall lend unto *A.* for 12 moneths to recompence him, not reckoning compound interest? Answer, If eight moneths require 600 pounds, what will 12 moneths require? the reason is less then 600 pounds, wherefore divide 600 pounds by 12, makes 50; which multiply by 8, makes 400 pounds.

Or otherwise by proportion, as 8 is to 12, so must 600 be to 400 pounds, 2:3 parts of 600 pounds.

If the number be not exactly proportionall, yet there is a great abbreviation to be made of the work of Reduction, Multiplication, and Division in the working of most Examples in the Golden Rule. As for example.

If 19 Barrels of Figgs cost 16 pounds, 12 shillings, what shall 58 Barrels cost? Here dividing 58 by 19, the Quotient is 3, and 1 will remain; wherefore I take 3 times 16 pounds, 12 shillings for 57 Barrels, & I have to work but for the one remaining; which is but to divide 16 pounds, 12 shillings by 19, makes 17 shillings, 9:19 of one shilling, the Totall is 50 pounds, 13 shillings, 9:19 shillings.

<i>l.</i>	<i>s.</i>			
16	12	49	16	9
3	3		17	19
<hr/>		<hr/>		
49	16	50	13	9:19

If 356 ells of Holland cost 124 pounds, 2 shillings 3 pence, what will 7259 ells cost at that rate? Reduce 124 pounds, 2 shillings 3 pence, into pence, makes 29787 pence: which multiply by 7259, makes 216223833

K 2

pence

pence, which divide by 359, makes 607370;
 which divided by 240 pence, makes 253
 pounds, 170 pence, or 14 shillings 2 pence.

Example.

<i>l.</i>	<i>s.</i>	<i>d.</i>	
124	2	3	<div> <div>29787</div> <div>7289</div> <hr/> </div>
20			64549453
<hr/>			14396136
2482			111602
12			48447
<hr/>			14353
4967			506
2482			181
<hr/>			1
29787			<hr/>
			216223833

then also 7259 by 3 pence, makes 21777 pence; which divided by 240 makes 90 pounds 14 shillings 9 pence; then add those two sums into one Totall, makes 900932 | 6 primes 9 pence; leave out 9, and then divide the residue by 336, makes 2530 pounds 7 primes, and 54:356; which with the 9 d. brings out the two pence, as in the last Example.

Example.

$$\begin{array}{r}
 7259 \\
 1241 \\
 \hline
 7256 \\
 290,6 \\
 14518 \\
 7259 \\
 \hline
 900841 \mid 9 \text{ d.} \\
 90 \mid 7 \ 9 \\
 \hline
 900932
 \end{array}$$

$$\begin{array}{r}
 d. \\
 7259 \\
 3 \\
 \hline
 21777
 \end{array}$$

$$\begin{array}{r}
 d. \\
 2239 \quad l. \quad 1 \\
 217770 \quad (50 \quad 7 \\
 21440 \\
 22
 \end{array}$$

Primes.

$$\begin{array}{r}
 20 \\
 2882534 \quad l. \quad 1 \\
 9009326 \quad (2530 \quad 7 \\
 3566666 \\
 35555 \\
 333
 \end{array}$$

If 24 pieces of Raisons cost 25 pounds, 8 shillings, what will 324 pieces cost? Multiply 324 by 25 pounds 4 primes, makes 8229, 6 primes: which if you divide by 24, the quotient will be 342 pounds, 9 primes, or 18 shillings without Reduction, as in the example following.

K 4

Example:

Example.

$$\begin{array}{r} 324 \\ 254 \\ \hline \end{array}$$

$$\begin{array}{r} 1296 \\ 1620 \\ 648 \\ \hline 8296 \end{array}$$

$$\begin{array}{r} 2 \\ 10610 \quad l. \quad 1 \\ 82296 \quad (342 \quad 9 \\ 24444 \\ 222 \quad \text{or} \\ 342 \quad l. \quad 18 \quad s. \end{array}$$

If 25 pounds gain 1 pound 8 shillings, what will 725 pounds gain at that rate? Multiply 725 by 1 pound 4 primes, makes 10150; which divided by 25, makes 40 pounds, 6 primes, or 12 shillings.

$$\begin{array}{r} 725 \\ 14 \\ \hline 2900 \\ 725 \\ \hline 10150 \end{array} \quad \begin{array}{r} l. \quad 1 \\ 10150 \quad (40 \quad 6 \\ 2598 \\ 22 \end{array}$$

And

And in this sort may divers other questions be wrought in pounds and shillings without Reduction, which I thought good to give a taste of, but I will proceed here no further, because I purpose in the second part of this book to speak of them at large in the Treatise of *Decimall Arithmetick*, whereby all manner of questions are to be wrought by Multiplication and Division in pounds, shillings and pence, without Reduction, as shall appear in their severall places following. And now I will proceed to speak something of the Rule of Three Direct and Converse in Fractionall operations, wherein I will be as brief as I may, not intending to increase this little Treatise intended for a pocket Book, into over large a volume.

The Rule of Three in Fractions.

If your 3 numbers given be all Fractions; multiply the third by the second, and divide the product by the first, and the Quotient will be the fourth proportionall number sought for,

K 3.

Examples.

Example:

If 3:4 of a yard of Holland cost 4:5 of a pound, what shall 5:6 of a yard cost at that rate? Multiply 5:6 by 4:5, makes 20:30, or 2:3, which divide by 3:4, makes 8:9 of one pound, or 17 shillings, 7:9 of one shilling.

20	8
4 : 5	2 : 3
5 : 6	3 : 4
30	9

If 7:8 of one ell of cloth cost 9:12 of a pound, what will 7 ells cost? Make 17 fraction-wise, and multiply 17:1, by 9:12, makes 53:12, which will both be abbreviated by 3, makes 51:4, which divided by 7:8 makes 408:28 parts of a pound, or in smaller terms 102:7; then divide 102 by 7 makes 14 pound, 4:7 of one pound for the price.

153	408	1
17 : 1	51 : 4	226 1
9 : 12	7 : 8	408 (14 4:7
12	28	288
		2

2 Rule

2 Rule.

If all your 3 numbers given be Fractions, multiply the Numerator of the first fraction by the denominator of the other 2 fractions for to make your Divisor. Then multiply the denominator of your first Fraction by the Numerators of your other 2 Fractions, to make your Dividend, and then divide by your Divisor, and the quotient is the answer sought : but if your Divisor be greater then your Dividend, then the quotient is a fraction less then a unite.

Example.

If 3:4 of a yard cost 4:5 of a pound, what cost 5:6 of a yard? Multiply 3 the Numerator of the first Fraction by 5 and 6 the Denominators of the other two Fractions, makes 90 for you Divisor : then multiply 4 the Denominator of your first fraction by 4 and 5, the Numerators of your other two fractions, makes 80 for your Dividend. Now because your Divisor is greater then your Dividend, place them Fraction-wise thus, 80:90 of 1 *li.* or in less terms, 8:9 of a *li.*

Ex-

Example:

90
 If 3 : 4 of a yard }
 cost 4 : 5 of a pound } makes 8 : 9
 what 5 : 6 of a yard }
 80

Again, if 7:8 of an ell cost 2:3 of a shilling, what will 34 ells cost?

21.
 If 7 : 8 of an ell,
 cost 2 : 3 of a shill.
 what 34 : 1 ells cost.

16
 ————
 104
 34
 ————

544

or 25 s. 19:21 of a s.

If 8 Pt. 3 5 of a day do make 22
 Rods of Baricado, what will they make in
 7 days?

If

3
If 3 : 5 of a Day
make 22 : 1 of a Wall,
What 7 : 1 of a Day ?
770

22 Rods. Rod.
770 (256 2:3
333

If 12 hundred 3:7 of Allum cost 15 pounds
1:3 li. what will 324, 1:8 of a hundred cost ?
Reduce the whole and broken numbers into
broken, and work as is before taught.

12	3:7	15	1:3	324	1:8
7		3		8	
<hr style="border: 0.5px solid black;"/>					
87	:	7	46	:	3
					2593
					:
					8

		128	
	2088	2063	
If	87 : 7	208824	l.
cost	46 : 3	834946	(399 1/3)
what	2593 : 8	208888	
	834946	2088	
		20	

If

If 7:9 of an ell cost 8:11 of a pound, what will 15:13 of an ell cost? 1 pound, 1 shilling, 6 pence, 3:4 fere.

Example.

1001		72
7:9	77	15
8:11	13	_____
15:13	_____	360
1080	231	72
	77	_____
	_____	1080
	1001	

79 l.	l.
1080 (1 79 :	1101
1001	

1 l. 1 s. 7 d. fere.

If 3:4 of a yard of Velvet cost 7:8 of a pound, what will 28 yards cost? 32 l. 13 s. 4 d.

Example.

Example.

$$\begin{array}{r}
 24 \\
 3:4 \\
 7:8 \\
 28:1 \\
 784
 \end{array}
 \qquad
 \begin{array}{r}
 28 \\
 28 \\
 \hline
 224 \\
 56 \\
 \hline
 784
 \end{array}$$

$$\begin{array}{r}
 1 \\
 86 \text{ l.} \\
 784 (32 \text{ 2:3 of a pound.} \\
 244 \\
 2
 \end{array}$$

If 3 ells 1:8 cost 5:7 of a pound, what will the whole piece cost, containing 28 ells 1:2 at that rate ? Answer.

$$\begin{array}{r}
 350 \\
 25:8 \\
 5:7 \\
 57:2 \\
 3280
 \end{array}
 \qquad
 \begin{array}{r}
 1 \text{ l.} \\
 2280 (6 \text{ 18:35} \\
 350 \\
 \text{or } 10 \text{ s. } 3 \text{ d. } 3:7 \text{ of } 2 \text{ d.}
 \end{array}$$

If

If 12 pound 4 ounces of Quichanella cost 4 pounds 3 shillings 4 pence, how much will 100 pound buy me at that rate? If 49:4 of a pound cost 25:6 of a pound sterling, what will 600:6 parts of a pound buy? Answer.

600

If 25:6 of a pound
buy 49:4 of a pound
what 600:6 of a pound

52 L.
276400 (264
66800

176400

The proof of this last example. If 100 pounds sterling buy me 294 pound of quichanella, how much shall 4 pounds 3 shillings 4 pence buy me? To find the value of the hundred, the rate of one pound being given, abate 2 places from 294, and it will be 2 pounds 54:100 parts of one pound: which multiply by 4 pounds, 1:6, makes 12 pounds 25, 100 parts, or one fourth for the proof.

L. 12

2:94

4 1:6

5
294

60

11, 6

L. 1:2

11:76

(49 49

12 2:5

11

If 30 men cast a Trench in 3 dayes 2:3, how many men would cast it in 5:6 of a day? here by comparing these proportions together, I find that 5:6 the third number, will desire a greater quantity of men to perform the work then 11:3 of a day will require; wherefore this proportion is reciprocally or backward: wherefore I multiply the 2 former numbers together, makes 330:3, or in smaller terms, 110:1, which divided by 5:6, makes 660:5; which divide by the denominator 5, makes 132 men.

330	660	xx Men.
11 : 3	110 : 1	660 (132
30 : 1	5 : 6	555
3	5	

In the Backward Rule, or Convert in fractions, multiply the Denominator of your third number by the Numerators of both your other numbers for dividend; then multiply the Numerator of your third number by the Denominators of your other 2 numbers for Divisor, and then work as before.

Example.

Example.

	1980	
If	11:3 of a day	43 Men
give	30:1 men	1980 (132
what	5:6 of a day.	1980
	15	xx

If when the bushell of Wheat was sold for 4 shillings, the penny loaf weighed 6 ounces, 1:2, what shall the same loaf weigh when Wheat is sold for 2 shillings 8 pence the bushell? Multiply 48 by 13 makes your Dividend 624, then 2 by 32 makes 64 for your Divisor; and then divide 624 by 64, makes 9 ounces, 43:64, or 3:4 of an ounce.

	624	
If	48: 1 pence	40 Ounces.
gives	13: 2 ounces	624 9 3:4
what	32: 1 pence.	64
	64	

If when one ounce of sterling silver was worth 1:4 of a pound, the penny of silver weighed 30 grains, what shall the same penny weigh when the ounce shall be worth 1:3 of a pound?

Example.

Example.

90

If	1:4 of a pound	12 Grains.
give	30:1 grains,	90 (22: 1:2
what	1:3 of a pound	44
	4	

If when a Load of Hay was sold for 24 shillings 8 pence, the penny bottle weighed 3 pounds 1:4, what shall it weigh now the load is sold for 37 shillings? Answer, 2 pound 71:76 of a pound?

1040

If	80:3 shillings	152 li.	li.
give	13:4 pound	2040 (2	71:76
what	37:1 shillings	444	
	444		

If 3 yards 1:8 cost 9 shillings 9 pence, what will 380 yards cost at that rate? Reduce 3 yards 1:8 into eights; makes 25:8, then reduce 380 yards into eights, makes, 3040:8 parts, then 9 s. 9d into pence makes 117 pence; by which multiply 3040, makes 355680, which divided by 25, makes 14227 pence, 5.25 of one penny,
in

The Golden Rule.

in the whole 59 pounds, 5 shillings, 7 pence.
5:25 or 1:5 of a penny. Behold the worke,

<i>yard.</i>	<i>s.</i>	<i>d.</i>	
3 1:8	9	9	380
8	12		8
<hr/>	<hr/>	<hr/>	<hr/>
25	117		3040
			117
<hr/>	<hr/>	<hr/>	<hr/>
10 105	<i>d.</i>		21280
255680 (14227 25)			3040
255555			3040
2222			<hr/>
			355680

<i>1 d.</i>					
2 63	<i>l.</i>		<i>d.</i>	<i>s.</i>	<i>d.</i>
142270	(59 2		19 or 5		7 1:5
24440.					
22					

The proof of the former work. If 380 yards cost 59 pounds, 5 shillings 7 pence 5:25 of one penny, what will 3 yards 1:8 cost at that rate? Reduce your coyn into 25, makes 355680; then reduce your 380 yards into 8, makes 3040; by which di-
vide

vide 144227 pence, makes 9 shillings, 9 pence, as before.

14227	59	5	7	5:25
25	20			
<hr/>				
71140	1185			
28454	12			
<hr/>				
355680	2377			
	1185			
<hr/>				

	14227	
32	d.	
522	9	s. d.
355680	(227	(9 9
304000	12	
3044		
30		

If 34 Ship-Carpenters build a Ship in 8 moneths 3:5, in how long time wil 12 Carpenters build the same? Reduce 8 moneths 3:5 into fifths, makes 43:5; then multiply 34 by 43, makes 1462. Also put your divisor 120 into fifths, makes 600:5; then dividing of 1462 by 600, the quotient will be 2 moneths 262:600 parts of one month, or in smallest terms 131:300 parts. And this rule is general: if one of your numbers be a fraction put always your divisor into the same fraction of your dividend, and the quotient will be

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be of the same denomination of your Dividend, and so the answer was moneths, and parts of a moneth.

If 34 Carpenters ask 43:5 moneths, what 600:5 moneths?

34		
43		
102	2 moneths.	moneth,
136	2462 (2	131:300
1462	600	

1462		
<i>moneths</i>	<i>days.</i>	<i>of a day.</i>
makes 2	12	68:300

If 100 *l.* in 12 moneths gain 10 *l.* what will 336 *l.* gain in 8 moneths? Take the tenth part of 336, which is 33 *l.* 6 primes, or 12 *s.* makes 369 *l.* 12 *s.*

Secondly, if 12 moneths gain 33 pounds 6 primes, what will 8 moneths gain? I answer, less then 33 *l.* 6 primes; wherefore multiply by 8, and divide by the greater extreme 12, makes 22 pounds, 4 primes, or 8 shillings, the answer.

If 120 Pioners in 6 days cast 300 rods of Trench, how many shall 600 men cast up in 4 days? If 120 give 30, what will 600 give? Answer, 1500 Rods.

Secondly,

Secondly, if 6 days give 1500 Rods, how many will 4 days give? I answer, less: multiply by 4, and divide by 6, makes 1000 rods.

If 112 pounds in 12 moneths gain 100 l. what wil 340 l. gain in 7 moneths? Answer. 303 l. 4:7.

Secondly, if 12 moneths gain 303 l. 4:7, what will 7 moneths gain?

Example.

7

12	2125	6497	l.	l.
7	7	14875	(117	11:1
84	14875	8444		
		88		

A generall Rule.

Put always your Divisor into the same Fraction of your Dividend, and your quotient will be of the same denomination that your Dividend was, as in the last example, 12 moneths was turned into sevenths, and also 303 l. 4:7 was turned into sevenths of pounds, and so the quotient of that division was pounds, and the fraction of a pound remaining.

If 7 pounds in 13 moneths gain 3 pounds, in how long time will 340 pounds gain 60 l? First, if 7 pounds gain 3 pounds, what wil 340 pounds

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pound gain, makes 145 pounds, 5:7 of a pound. Secondly, if 145 pound 5:7, or 1020:7 ask 13 moneths, what will 60 pounds, or 420:7 gain? Multiply by 13, and divide by 1020, makes 5 moneths 6:7 of a moneth.

If 600 great horses in 5 days do spend 1125 bushels of oats, how many bushels, will serve 1400 horses for 22 days? First say, if 600 give 1125, what 1400, makes 2625 bushels. Secondly, if 5 spend 2625 bushels, what will 22 dayes spends? Multiply by 22, and divide by 3, makes 11550 bushels.

How to work the double Rule at one operation.

This last question, or any other of like nature, which is wrought by the double Rule at 2 severall operations, may be answered at one in this manner: Multiply the three latter numbers to make your dividend one into the other; then multiply the 2 former numbers for to make your divisor, and then divide the dividend by the divisor, and the quotient will be the same, as in the last example, 1125 being multiplied by 1400, makes 1575000, which again multiplied by 22 makes your dividend 34650000. Then multiply your two former numbers 600 by 5, makes 3000 for the divisor; and then dividing your dividend by your
Divisor

Divisor 3000, the quotient will be 11550 bushels, as before at two operations.

Example.

1125	
1400	
<hr/>	
4500	600
1125	5
<hr/>	
1575000	3000
22	
<hr/>	
3150	
3150	
<hr/>	
34650000	
xx	<i>Bushels.</i>
34650000	(11550
3333000	

If 35 s. in 7 moneths gain 6 s. in how long time will 340 l. gain 100 l? First, if 35 s. gain 6 s. what wil 340 l. require? Reduce 340 l. into shillings, and multiply by 6, makes 4080, which divided by 35 makes 1165 s. 5:7 s. Secondly, if 1165 s. 5:7 require 7 moneths, what will 100 l. require? Makes 12 moneths, 8:816 parts of a moneth.

Fellowship without Time.

This Rule differeth very little from the
L Rule

Rule of Three ; for in this Rule the sum of all the monies disbursed, is the first number in the Golden Rule. Then the gains or loss is the second number : the third number is each severall partners money disbursed : so that the Rule must be severally wrought for each severall partners portion.

Example.

Four Merchants made a Company together ; the first, *viz.* *A* put in stock 74 *l.* *B.* put in 90 *l.* *C.* put in 100 *l.* and *D.* put in 120 *l.* and they found that they had gained 84 *l.* Now the question is , what each man must have of the gains, according to the proportion of his money disbursed ? First, add all the monies disbursed into one total sum, *viz.* 74:90, 100, 120, Totall is 384 for the first number in the Golden Rule. Then the second number is 84 pounds the gains, and the third number is each particular mans stock : then work as followeth.

Example.

If 384 pounds gain 84 pounds, what will *A.B.C.D.* summes gain to them ?

A

A.	74	16.	72
B.	99	19.	264
C.	100	21.	366
D.	120	26.	96
2			

The Proof. 384. 84. 768 (2
384

The like reason is in loss as in gains. Example : A certain ship being in a tempest on the sea, was forced to cast over-board so much of her lading as amounted unto the sum of 642 *l.* then there is great reason that all the Venturers should bear part of that loss, according to the proportion of his stock which he ventured. As suppose, *A.* ventured 700 *l.* *B.* 530 *l.* *C.* 64 *l.* *D.* 800 *l.* Totall is 2670 : Then say, If 2670 *l.* lose 642 *l.* what will each of *A.B.C.D.* lose ? as in the example following.

Example.

If 2670 pounds lose 642 pounds, what will *A.B.C.D.* fums lose to them ?

A.	700	168.	84
B.	530	127.	117. 267
C.	640	153.	237
D.	800	192.	96
2			

The proof. 2670 642 584 (2
167

L 2

Four

400 pounds, 18 shillings, 6 pence, what will *A.B.C.D.* summes gain to them?

	<i>d.</i>	<i>li.</i>	<i>s.</i>	<i>d.</i>
<i>A.</i>	76931 makes	57	2.	1
<i>B.</i>	201798 makes	123	17	3
<i>C.</i>	164525 makes	82	12	9
<i>D.</i>	240000 makes	147	6	5
<hr/>				
<i>The proof.</i>		400	18	6

*Rules of Fellowship with diversity
of Time.*

Multiply each mans money disbursed by the time that it continued in stock, and gather the totals, as in the last Rule, to make the first term in the Golden Rule, and the gains or losse is the second, and then each mans product of money, and time for the third term in the Golden Rule, and work as followeth.

Example.

Three men make a stock, *A. B.* and *C.* and in long continuance of time by dangerous adventures, they gained and got by prizes taken at Sea, 2345 pounds; *A* put in stock 40 *l.* 14 moneths *B.* put in 50 pounds 8 moneths; *C.* put in 85 pounds 6 moneths, what shal each man have of this gains?

Example.

Example.

<i>l. months.</i>	<i>l. months</i>	<i>l. months</i>
A. 40 14	B. 50 8	C. 85 6
14	8	6
560	400	510

If 1470 pounds gain 2345 pounds, what will *A.B.C.* summes gain them?

A.	560	893	7	
B.	400	638	2	1.1
C.	510	813	12	
		1		

1470 | 2345

21 (1

21

The second question with more diversity of time, four Merchants made a Company, *A.* put in 340 *l.* 19 *s.* 2 *d.* for 10 months. *B.* put in 930 *l.* for 9 months. *C.* put in 760 *l.* for 12 months. *D.* put in 583 *l.* 13 *s.* 4 *d.* for 5 months, wherewith they gained 740 *ls.* Now the question is, to know what each man must have of this gains?

Fellowship with Time.

Example.

	li.	s.	d.	months.
A.	340	19	2	10
	20			

 6819

12 d.

 13640

6819

 81830

10 months,

 818300

B	930 l.	9 months
---	--------	----------

9

 8370

240

 334800

16740

 2008800 pence.

C	760 li.	12 months.
---	---------	------------

240

 30400

1520

 182400

12 months.

 2188800

Fellowship with Time.

27 5

D. 583 li. 13 s. 4 d. 5 months.

20

11673

12

23350

11673

140080

5 months.

700400

A. 8183 00

B. 20088 00

C. 21888 00

D. 7004 00

5716300

Cut off two Cyphers from each number, and then work as followeth.

If 57163 pence gain 176 pence, what will A. B. C. D. sums gain them?

		l.	s.	d.	d.
A.	8183	105	18	7	4:5
B.	20088	260	00	11	3:5
C.	21888	283	6	11	4:5
D.	7004	90	13	4	4:5

3 3

The
proofe. | 57163 | 740 | 00 | 0 | 15:5

5(3)

L 5.

Example.

Example.

There is a booty or spoil taken by 3 men worth 785 1 pound, and they agree to divide it in this sort; *A* is to have one half, *B* one third, *C* one fourth, what is each mans share?

To work this question, and all other of like nature, seek a number which may be divided by all the Denominators of your 3 Fractions in whole numbers, and the smaller such a number be that you chuse, the more easie will your work be; which for to find, multiply your Denominators of your Fractions one into another, that is to say, 2 by 3 makes 6; and 6 by 4 makes 24, so 12, one halfe of 24, will be evenly divided by all the 3 denominators, 2, 3, and 4. Wherefore I take 1:2 of 12 is 6, and 1:3 of 12 is 4, and 1:4 of 12 is 3, which added into one sum, makes 13 for the first number in the Golden Rule; the second is 785 1 pounds, and the third numbers are each severall mans portion imagined to be, *viz.* 6 4:3, and then work as before.

If 13 give 785 1 pounds, what will *A.B.C.* sums give? *li.*

$$\begin{array}{r|l} \text{A.} & 6 \mid 3623. \quad 7 \\ \text{B.} & 4 \mid 2415. \quad 9 \quad 13 \\ \text{C.} & 3 \mid 1811. \quad 10 \end{array}$$

2

The Proof. $13 \mid 7851 \quad 26 \quad (2$

23

Example.

Example.

Four Merchants bought a house together, which cost 3000 pound; *A* was to pay 1:2 and 6 pounds overplus; *B* 1:3 and 12 pounds more; *C* 8 pounds less then 2:3; *D* 1:4 with 20 pounds overplus. Now the question is, what each Merchant must pay for his sum? Answer, First the pounds overplus must be subtracted from the summe given; and the pounds wanting must be added to the sum given; as for *A*. 6 pounds, for *B*. 12 pounds, for *D*. 20 pounds, totall is 38 pounds to be subtracted; then for *C*. add 8 pounds, therefore subtract 30 pounds from 3000 pounds there will remain 2970 pounds, then work by the rule of Fellowship, taking 12 for a number; which wil be divided by all the denominators, 2, 3, and 4, viz. take for *A* 6, for *B* 4, for *C*. 8, for *D* 3. totall is 21 for Divisor, the second number is 2970 pounds, the third each mans part imagined.

Examples.

If 21 give 2970 pounds, what will *A. B. C. D.* summes give?

A.	6	848	4:7	854	4
B.	4	565	5:7	577	5
C.	8	1131	3:7	1123	3
D.	3	424	2:7	444	2
		2		2	

21 | 2970 24(2 | 3 000 24(2

The proof.

The numbers found to A are 848 pound 4:7, to which if ynu add six pounds, makes 854 pounds 4:7.

To B. 565 pounds, to which 12 pounds added, makes 577 pounds, 5:7.

To C. 1131 pounds, 3:7, from which subtract 8, leaves 1123 pounds, 3:7.

To D. 424 pounds, 2:7, to which add 20 pounds, makes 444 pounds, 2:7, the which added into one totall, makes 3000 pounds, the proof.

And in this manner may infinite variety of questions be propounded, and their doubts easily resolved. And here will I end concerning this Rule, and go in hand with some pleasant questions to be wrought by Position, which is the most excellent Rule of all others in Arithmetick, as shall appear in the second part of this Book in Decimal Arithmetick.

Position

Position.

The Rule of Position requiring one number to be imagined before the principall proportion be found.

TO work by this Rule, take any number at pleasure which you shall imagine to be the true number sought, and proceed with it, as if it were the true number, wherein if you have failed, by doubling or tripling, according to the nature of the question, you shall then attain unto the true number desired, by the aid of the Golden Rule, in manner following: For look what proportion is between the false conclusion and the false position, such proportion hath the given number to the number sought.

Example.

A. B. and C. consent to buy a Ship, which will cost them 2700 pounds, so that B. must pay twice so much as A. and C. must pay 4 times so much as B. the question is, what each man must pay of this summe? I suppose A. must pay 8 pounds, then B. must pay twice as much as A. which is 16 pounds; then C. must pay 64 pound, which is 4 times as much as B. but yet 8 pounds, 16 pounds, and 64 pounds,

is but 88 pounds, and it should be 2700 pounds, so that now I resort to the Golden Rule, and work as followeth. If 88 pounds come of my position 8 pound, of what comes 2700? Multiply 2700 by 8, and then divide by 88, makes 245 pounds, 40:88, or 5:11 of a pound for the part that *A* must pay; then *B* must pay 490 pounds, 10:11 of a pound, which is twice as much as *A*; and *C* must pay 1960 pounds, 40:11 of a pound, which is 4 times as much as *B*. The totall sum is 2700 pounds. Behold, work as followeth.

If 88 pounds come of 8 pounds, of what comes 2700:

$$\begin{array}{rcl}
 & 44 & \\
 4080 & & l. \\
 21600 & (245 & 40:88, \text{ or } 5:11 \\
 8888 & & \\
 88 & & 2700 \\
 & & 8
 \end{array}$$

2. Example. —————
21600

A Captain of a Band of Men being asked, what number of Souldiers were in his Band, answered, I do not readily know; yet (quoth he) of this I am certain, that the 1:2 and 2:3, and 4:5, and 1:6 of their number added together into one sum, are 384 men: Now the question

question is, what sum of men he had in his Band? I suppose he had 60 men, or 30 men in his Band but the least number is best *viz.* 30, whereof 1:2 is 15, and 2:3 is 30, and 4:5 is 24, also 1:6 is 5, their totall is but 64 men, but that should be 384 men. Then say by the Golden Rule, as followeth.

If 64 come of 30, of what number comes 384.

384	<i>580 men.</i>
30	<i>11520 (180</i>
<hr style="width: 100px; border: 0.5px solid black;"/>	<i>6444</i>
11520	<i>66</i>

Answer: He had 180 men in his Band, whereof

1:2 is	90 men,
2:3 is	100,
4:5 is	144,
1:6 is	30.

Totall is 384 men

The solution of this question another way more brief.

Divide 384 by 64, makes 6; which multiply by 30, makes 180 men, as before.

3 Example.

A certain man having spent 120 pounds, had.

had yet remaining 1:2 and 1:3 of his whole substance ; the question is, what his substance was? Answer, First 1:2 and 1:3 is 5:6, which being taken from 6:6, the whole substance leaves remaining 1:6 ; therefore if 1:6 be 40 pounds, what is 6:6 ? Makes 240 pounds.

li.

40

6

240

4 Example.

A Merchant bought 384 yards of Broad-cloth of severall prices, of each a like quantity, and he was to pay half as much more for the second sort as he paid for the first, and twice as much for the third sort as he paid for the second : Now the question is, What each sort cost him, and at what price every yard was rated unto him. I suppose the first sort cost him 4 pounds, then the second sort must cost him 6 pounds, which is half as much more as the first, and then the third sort costs him 12 pounds, which is twice as much as the second : the totall is but 22 pounds, but it should be 48 pounds, wherefore if 22 pounds come to 4 pounds, of what number comes 48 pounds ?

Example.

Example.

12		248 li.
992 (45	1:11	4
222		<hr/>
2		992

The first cost him 45 pounds, 1:11 of a pound, then the second sort cost 67 pounds, 7:11 of a pound; the third sort cost 135 pounds, 3:11 of a pound, total is 248 pounds; then divide 384 by 2, and you shall find he had 128 yards of each sort, and by practice you shall find the first sort cost 7 shillings, 1:2 d: a yard, the second sort cost 10 shillings 7 pence a yard almost; the third sort cost 21 shillings, 1 penny 1:2 d.

Double Position.

The Rule of Double Position.

Suppose a number at pleasure, as in the last Rule of single Position, and proceed as if you had found the right number, and if by working you find the true number, then your Position was the right number, which doth seldom happen. First, if by your working there cometh out more then the true number,

ber, then note it thus $-|-$ with a cross, if less, then thus $—$ with a long line, which doth signifie less.

Secondly, suppose another number greater or smaller, and work as before untill you do find the true number sought; which if you do not find, see the difference also from the true number sought, and note it with the sign $-|-$ or $—$ as it shall be found.

Then thirdly, set your suppositions with their errors, more or less, as in the examples following.

Fourthly, multiply cross the first position by the second error, and the second position by the error of the first, and then if the signs be both alike $-|-$ or $—$ abate the lesser from the greater, and the remains shall be the Dividend. Also the lesser error abated from the greater, leaves the Divisor; but if the signs be contrary, one $-|-$ the other less, add both together to make the Dividend, and add the two errors to make the Divisor: and lastly, divide the Dividend by the Divisor, and the quotient is the true number desired.

1 Example.

A certain man seeing a purse in his friends hand, saith unto him: It seemeth unto me, that there is 100 crowns in your purse. To whom

whom the other answered : Nay, quoth he, there are not 100 Crowns ; but (saith he) if they were increased 1:2, and 1:3, and 1:4, and lastly, one Crown overplus, then would they be just 100 Crowns.

I suppose there were 12 Crowns in his purse, to which I add one half of 12, which is 6 ; and one third of 12, which is 4 ; and one fourth of 12 which is 3 ; and lastly, one Crown more, the totall will be but 26 Crowns, but they should be 100 Crowns, so that this error is too little by 74 Crowns, which I note thus :

$$74 \text{ --- } 12$$

Secondly, I suppose he had 24 Crowns, to which I add 1:2 of 24, which is 12, and 1:3, which is 8, and 1:4, which is 6 : and lastly, one Crown overplus, the totall is 51, but it should be 100 Crowns, so that this is an error of 49 too little, which I note thus :

$$49 \text{ --- } 24$$

588		74	49
748	12	24	12
49	24		
1776		296	98
588		148	49
1188		1176	588

74	113	
49	2188 (47	13:25
25	255	
	2	

The answer is, That he had 47 pounds 13:25 parts of a pound in his purse. The proof followeth.

1:2 of 47*l.* 1.3:25 of a *li.* is 13:19
 1:3 is ————— 15:21 25
 1:4 is ————— 11:12
 and one Crown overplus is 1:00

47:13

2 Example.

Twenty yards of Sattin, and 12 shillings, is equall unto 13 yards of Velvet less, 10 shillings; the price of either sort is required.

To answer this, or any other like question, take any number for the price of a yard of

of the lesser number, which here is Velvet, which at 20 shillings a yard, lesse 10 shillings, amounteth unto 230 shillings. Now admit a yard of Sattin at 14 shillings, so 20 yards and 12 shillings amounteth unto 292 shillings; from which subtract 230 shillings, rests 62 shillings more then the truth. Again, rate a yard at 12 shillings, so the 20 yards and 12 shillings, makes 252 shillings; from which take 230 shillings, rests 22 shillings more then the truth also. Now multiplying 22 by 14, and 62 by 12, the Products are 308, and 744, and the difference of those numbers is 436, then take 22 from 62, rests 40 for divisor; by which divide the difference, makes 10 shillings, 9:10 shillings for the price of a yard of Sattin.

Example.

$$\begin{array}{r}
 62 \\
 22 \quad 12 \\
 14 \text{ ---} \\
 \hline
 124 \\
 88 \text{ ---} \\
 22 \quad 62 \\
 \hline
 308 \quad 744 \\
 308 \\
 \hline
 436
 \end{array}$$

Difference.

$$\left. \begin{array}{l} 14 \mid -62 \\ 12 \mid -22 \end{array} \right\} \begin{array}{l} \text{Divisor.} \\ 40 \end{array}$$

$$\begin{array}{r}
 s. \quad s. \\
 436 \text{ (10} \quad 9:10 \\
 440
 \end{array}$$

3 Example.

Otherwise if 40, the difference of errors gain 2, the difference of positions, then 62 the first error yeilds 3 and 1:10.

Or if 40 yeild 2, what 22 ? makes 1 and 1:10; this taken from 12, or 3, 1:10 from 14, leaves 10, 9:10 for the price as before.

4 Example.

A Carpenter was hired to work 20 days at 12 pence a day; but every day that he was idle, he was to abate 18 pence of his wages, and in the end he received but 8 shillings. : Now the question is, how many dayes he wrought.

First, suppose he wrought 12 days, which cometh to 12 shillings, then must the 8 days that he played, come to 12 shillings at 18 pence a day also : but this question saith, there came due to him 8 shillings. Behold an error of 8 shillings too little.

Again I say that he wrought 14 days, amounting to 14 shillings : the 6 days that he played at 18 pence a day, cometh to 9 s. this taken from 4 shillings leaves 5 shillings, and it should be 8 shillings, which is an error of 3 shillings too little. Now multiplying 12 by 3, and 14 by 8, the products
are

are 36, and 112, and the excess is 76; which being divided by 5, the difference of the errors quoteth out 15 1:5 for the number of working days, and 4 days 4:5 for the number of playing days.

$$\begin{array}{rcl} 12 & \text{---} & 8 \\ & & \} \\ 14 & & 3 \end{array} \begin{array}{l} \\ \\ 5 \end{array}$$

Otherways.

If 5, the difference of errors, yeeld 2, the difference of Positions, what 8 the first error? makes 3, 1:5 to be added to 12.

Or if 5 be 2, what is 3? makes 1, 1:5 to be added to the second Position 14, whereby all three wayes, the number of the days he wrought are found out.

Barter or Exchange.

TWo men barter, one hath Ginger of 10 pence a pound ready mony, and in barter he will sell it for 12 pence a pound. The other hath Sugar of 12 pence a pound ready money, but in barter he will sell it for 14 pence a pound: the question is, how much Sugar will pay for 756 pounds of Ginger?

First

First, put your price of your Ginger into pence, makes 9072 pence, which divide by 14 pence, makes 648 pounds of Sugar, which must be given for 756 pounds of Ginger at 12 pence the pound.

2 Example.

Two Merchants will barter, one hath raysons of 34 shillings the hundred, ready money, and in barter he will sell them for 40 shillings: the other hath Nutmegs of 40 shillings the pound ready money, how shall he set his Nutmegs to make the like profit? Put your coyn into pence, and say, If 408 pence be 480 d. what is 48 d? Multiply 480 by 48, and divide by 408, makes 56 d. 24:51 of one penny for the price of the nutmegs, viz. 4s. 8 d. 1:2 of a pound.

3 Example.

Two Merchants will barter, one hath Holland of 2 shillings 7 d. the ell ready money, which he will sell in barter for 2 shillings 10 pence the ell, and yet he will gain privately 10 pound in 100 pound over that gain: at what price must he then sell his Holland? Answer: set down 2 shillings 10 pence in pence, makes 34 pence; of which take the tenth part, which is 3 pence 4:10. or 2:5, and adde

add to 34 pence, makes 37 pence 2:5 of a pennie for the price to sell one ell to make that gains. Now the other Merchant hath wool at 7 shillings a Tod readie monie, how shall he sell his wool to make like profit, that he be not deceived in the bargain? If 31 pence be 37 pence, 2:5, what is 84 pence? Multiplie 374 primes by 84, makes 31416; which divide by 31, makes 101 pence, 3:10 pennie, or 8 shillings, 5 pence 3:10 of one pennie, which is the price for him to sell his wool to make like profit.

Example.

$$\begin{array}{r} 34 \\ 34 \\ \hline 374 \end{array}$$

$$\begin{array}{r} \text{r} \\ 374 \\ 84 \\ \hline 1496 \\ 2992 \\ \hline 31416 \end{array}$$

$$\begin{array}{r} \text{r} \\ 103 \\ 31416 \\ 31416 \\ 333 \end{array} \quad \begin{array}{l} d. \\ (101. 3:10 \text{ of one pennie:} \end{array}$$

4 Example.

Two Merchants will barter, one hath Sugar
M gar

gar of 6 pound 4 shillings readie monie, and he will sell it for 7 pound the hundred. The other hath Ginger of 4 pound six shillings the hundred, and in barter he will sell it for 5 *li*, the hundred; now the question is, at what rate each of them doth gain *per cent.* and which hath the advantage of the other.

First, if 6 pound 2 primes gain 8 primes, what will 100 pound gain? Multiplie 8 primes by 100, makes 800 primes; then add 2 or 3 ciphers more to it, which divide by 6: 2 primes, makes 12*l.* 9 primes, 10:3 1 of a prime, or neer 12 *li.* 18 *s.* which the first man doth gain *per cent.*

Secondly, if 4 *li.* 3 primes gain 7 primes, what will 100 *li.* gain? Multiplie 7 primes by 100, and adde 2 ciphers more, makes 70000, which divide by 4: 3 primes, makes 16 pound, 2 primes, 34:43 of a prime; from which subtract 12 pound, 18 shillings, 8 pence, rests 3 pound, 7 shillings, 7 pence, which the second man hath gained more than the first gained.

5 Example.

Two Merchants barter, one hath a certain number of pieces of Sakkins at 18 shillings a piece, for the which the other doth give him 1806 ells of linnen cloth, at 16 pence the

the ell, and yet 30 *li.* in readie monie; the question is, how many pieces of Sakkin he had. First find what 1806 ells of linnen cloth cost by practice; makes 120 *li.* 8. *s.* to the which add 30 *li.* makes 150 *li.* 8. *s.* then divide 150 *li.* 4 primes, by 18 *s.* or 9 primes, make 169 pieces of Sakkin, and 1:9 of a piece.

Example.

	<i>li.</i>	<i>l</i>
3		
18060	(120	4
15855	30	
	<hr/>	
	150	4
66x	Pieces	Piece.
1504	(167	1:9
999		

6 Example.

Two men will barter, one hath Pepper of 22 pence the pound readie monie, but in barter he will sell it for 27 pence the pound: the other hath Cinnamon of 3 shillings 6 pence the pound readie monie, and in barter he will sell it for 4 shillings the pound: the question is, how much Cinnamon will pay for 384 pound of Pepper at that rate? First, 384

M 2

pound

pound of Pepper at 27 pence the pound is 43
li. 4 *s.* which divide 864 *s.* by 4 *s.* makes 216
 pound Cinnamon, which he must give.

7 Example.

If 4 English ells makes 5 yards, and 13 yards
 makes 50 Pawns at Geans, how many Pawns
 is in 100 ells English? If 5 be 4, what is 13,
 makes 10, 2:5. Secondlie, if 10, 2:5 be 50, what
 is 100, 480, 0:13.

8 Example.

Every 4 ells at *Antwerpe* maketh 5 at
Frankeford, and 25 there makes 24 Braces at
Luques, the Question is, how many Braces in
 100 in *Antwerpe*. If 25 be 24, what is 5? makes
 4, 4:5. Secondlie, if 4 be 4, 4:5, What are 100,
 makes 120.

9 Example.

If 3 yards at *London* be 4 ells at *Antwerpe*,
 how many yards at *London* make 84 ells at
Antwerpe. If 4 be 3, what 84? makes 63 ells.

10 Example.

At *Roan* 112 ells make but 98, and 100 ells
 at *Roan* is 112 at *Sivil*, how many of ours in
 100 ells of *Sivil*. If 98 *Roan* be 112 ells, what

100 Roan ? makes 114 ells, 1:7 of an ell. Se-
condlie, if 112 ells be 114, 1:7, what is 100
Sivil ? makes 102, 19:25.

11 Example.

If 67 yards at London be 100 in Venice; how
many are 7894? multiplie by 67, makes 5288
yards, 98:100 parts.

12 Example.

A Merchant doth deliver 400 li. sterling in
London by exchange for Antwerpe, at 23 s. 5 d.
the pound sterling, the question is, how much
Flemish monie he shall receive at Antwerpe;
put your 23 s. 5 d. into pence, makes 281 d.
which multiplie by 400, makes 112400 pence,
which divide by 240, makes 468 li. 6 s. 8 d.
which he must receive at Antwerpe,

Example.

s.	d.				
23	5				
12				281	
<hr/>				400	
276					
5					
<hr/>				112400	
281					
2	d.				
16088		l.	1	d.	
1124000		468	3	8	
244440					
222					

13 Example.

If 100 pound sterling be 104 *li.* 6. *s.* 4 *d.* *Flemmish*, what is one pound sterling worth? Reduce your coin, 134 *li.* 6 *s.* 4 *d.* into pence, make 32236; which divided by 100, makes 322 pence, 9:25 pence, or 26 *s.* 10 *d.* 9:25 of one pennie, for one pound sterling.

If one pound sterling be 1 *li.* 14 *s.* 7 *d.* *ob.* *Flemmish*, how much sterling monie is in 100 *li.* *Flemmish*? Reduce 100 pound into pence, makes 24000 pence; then put it into half pence, makes 48000 half pence, then put 1 *li.* 14 *s.* 7 *d.* *ob.* into half pence, makes 831; by which divide 48000, makes 57 *li.* 15 *s.* 1 pennie almost, and so much sterling monie is in 100 *li.* of *Flemmish* monie at that rate.

Of Gain and Losse.

IF 13 pieces of Canvas cost 17 *li.* 12 *s.* how may I sell them to gain 8 pound in the hundred? Multiplie 176, by 8 makes 1:408 or 1 *li.* 8 *s.* 2 *d.* almost, and so much must he sell them for to gain 8 pound in the hundred.

If 17 *li.* 12 *s.* gain 1 *li.* 8 *s.* 2 *d.* what will 100 *li.* gain? Multiplie 1 *li.* 8 *s.* 2 *d.* in Decimals by 100, and divide by 17 pound, 6 primes, makes 8 *li.* in the 100. the proof.

Example.

$$\begin{array}{r}
 17600 \\
 \dots 8 \\
 \hline
 1408
 \end{array}
 \quad
 \begin{array}{r}
 1408 \text{ (8 li.)} \\
 176
 \end{array}$$

A Merchant hath lent 630 *li.* at interest for 10 *li.* in the 100 for three yeares, interest upon interest, the question is, unto what sum it will amount unto at the end of the term? Answer: Take the tenth part, and add it into one total 3 several times, makes 838 *li.* 10 *s.* 7 *d.* 175 of a penne, for the principal and interest, at the rate given, to be paid at the end of three yeares.

Example.

1. year.		3. year.
60	2 year.	76230
630	6930	76230
<hr/>	6930	<hr/>
693 0	<hr/>	838 539
	762 30	
	M 4	

Example.

2 Example.

A Merchant receiveth for principal and interest 838 li. 10 s. 7 d. 1:5 of a pennie at 10 l. in the hundred compound interest, which was for monie delivered out for three years ; now the question is , what was the sum of monie that was lent ? To do this, or any other the like question, divide the sum of monie received by 100 three several times , and the three quotients will shew the yearlie increase of the monie lent , and the last quotient will be the answer to the question, or the monie disbursed, as in the Example following, which is the proof of the former question.

Example.

623	103
838930	(76230 (6930.
xxxxx	xxxxx
xxx	xx
3	
6930	(630 pound lent.
xxxxx	
x	

3 Example.

A Merchant lent 100 pound for 7 years at 10 pound in the hundred Compound Interest, the question is, what he shall receive at the end of the term.

Example.

Example.

100 |
10 0

———— one year 100 *li.*

110 0
11 00

———— 2 years, 121 *li.*

121 00
12 100

———— 3 years, 133 *li.* 2 *s.* 0 *d.*

133 100
13 3100

———— 4 years, 156 *li.* 8 *s.* 2 *d.*

156 4100
14 64100

———— 5 years, 161 *li.* 1 *s.*

161 05100
16 105100

———— 6 years, 177 *li.* 3 *s.* 1 *d.* 06.

177 156100
17 71561

———— 7 years, 194 *li.* 17 *s.* 5 *d.*

19 1871710

Makes at 7 years end 194 *li.* 17 *s.* 5 *d.*

*How to work Compound Interest at any
rate per cent.*

What is the principal and interest of 35²
M 5 pound

pound, put out at pound in the hundred compound Interest, to be paid at the end of two years? Add 2 ciphers to 352 *li* makes 35200; then place your Interest 8 under the lowest cipher next the right hand, and multiplie 352 by 8, placing the product under the line, and that will be the Interests, which added unto the sum lent, makes the total of the principal and interest, and so work for the second, third and fourth year, as in the example.

<i>1. year.</i> 352008 <hr style="width: 100%;"/> 2816 <hr style="width: 100%;"/> 380 16 or 380 <i>li.</i> 3 <i>s.</i> 2 <i>d.</i>	38016008 <hr style="width: 100%;"/> 304128 <hr style="width: 100%;"/> 410 5728 or 410 <i>li.</i> 11 <i>s.</i> 5 <i>d.</i>
--	---

First, I multiplie 35200 by 8, makes 2816; which I add unto 35200, makes 38016; then I multiplie 3801600 by 8, makes 410|5728, or 11 *s.* 5 *d.* abating 4 figures for the 4 ciphers, which I added to the sum for to find out the prime line, as appeareth in the example; and so of any other sum or rate in the hundred.

At 17 pound the hundred *per annum*, compound

pound interest, what will 879 pound amount unto, to be all forborn unto the end of five years? Add 2 ciphers to your sum given, and multiplie by your Interest 17, and add into the principal, and so work 5 years, and the last product will be the sum of monie to be received, viz. 1927 li. 3 s. 5 d.

Example.

87900

17

6153

879

First year.

1028 | 4300

17

17 | 9901

2 | 843

Two years.

1203 | 263100

17

1842 | 38417

203 | 2631

Three years.

1407 | 81782700

17

1985 | 4724789

407 | 817827

Four years.

1647 | &c.

242

Gain and Losse.

1647 | 1468575900

17

115 | 3002800313

164 | 7 146857 59

 1927 | 1618233803

 ————— Five years.

<i>li.</i>	<i>s.</i>	<i>d.</i>
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1927.	3.	5.
-------	----	----

If a Merchant buy a parcel of Holland, at 3*li.* 6. the peice; and another parcel at 4*li.* 2*s.* the piece; the third sort at 1 *li* 10*s.* the piece; the fourth sort at 5 *li.* the piece; how may he sell 40 pieces, of each sort 10 pieces, to gain 18*li.* in the hundred, and give 9 months time for the payment? as in the example following.

Example.

10 Pieces at 3.	6. a piece,	33 0.
10 Pieces at 4.	2. a piece,	41 0.
10 Pieces at 4.	10. a piece,	45 0.
10 Pieces at 5.	0. a piece,	50 0.

The sum is, 169. 0.
 16900
 18

1452

16)

1994

Take

Take the 3:4 of the interest, makes 191 *li.* 16 *s.* 3 *d.* 3:5 of one pennie, to sell to gain 18 pound in the hundred for to give 9 months time.

A Merchant sold 300 quarters of Wheat, cost him 352 *li.* readie monie, and lost 7 *li.* in the hundred, what did one quarter cost him, and at what rate did he sell a quarter to lose 7 *li.* in the hundred? Take the Interest at 7 *li.* in the hundred, which is 24 *li.* 12 *s.* 9 pence 3:5, which subtract from 352 pound, makes 327 pound 7 shillings 2 pence 2:5 of a pennie, and divide the remainder by 300, makes 1 pound 1 shilling 10 pence for the price sold: Secondlie, divide 352 pound by 300 makes 1 pound 3 shillings 5 pence 06. for the price which it cost him.

Rie sold for 3 shillings a bushel loseth 20 pound in the hundred, what will then be lost, if it be sold for 3 shillings 6 pence a bushel? If 3 shillings be 80 *li.* what is 3 shillings 6 pence? Multiplie 80 *li.* by 31:2, or by 3 shillings 6 pence, makes 2800; which divide by 3, makes 93 *li.* 1:3. Or otherwise, if 36 pence be 80 *li.* what is 42 pence? Multiplie 80 by 42, and divide by 36, makes 93 *li.* 1:3 of a pound as before.

If in one ell of cloth sold for 3 shillings 2 pence, there were gained after the rate of 20 pound

242

Gain and Losse.

1647 | 1468575900
 17

115 | 3002800313

164 | 7 146857 59

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Example.

10 Pieces at 3. 6. a piece, 33 0.

10 Pieces at 4. 2. a piece, 41. 0.

10 Pieces at 4. 10. a piece, 45 0.

10 Pieces at 5. 0. a piece, 50. 0.

The sum is, 169. 0.

16900

18

1452

160

1924

Take

Take the 3:4 of the interest, makes 191 *li.* 16 *s.* 3 *d.* 3:5 of one pennie, to sell to gain 18 pound in the hundred for to give 9 months time.

A Merchant sold 300 quarters of Wheat, cost him 352 *li.* readie monie, and lost 7 *li.* in the hundred, what did one quarter cost him, and at what rate did he sell a quarter to lose 7 *li.* in the hundred? Take the Interest at 7 *li.* in the hundred, which is 24 *li.* 12 *s.* 9 pence 3:5, which subtract from 352 pound, makes 327 pound 7 shillings 2 pence 2:5 of a pennie, and divide the remainder by 300, makes 1 pound 1 shilling 10 pence for the price sold: Secondlie, divide 352 pound by 300 makes 1 pound 3 shillings 5 pence 06. for the price which it cost him.

Ric sold for 3 shillings a bushel loseth 20 pound in the hundred, what will then be lost, if it be sold for 3 shillings 6 pence a bushel? If 3 shillings be 80 *li.* what is 3 shillings 6 pence? Multiplie 80 *li.* by 31:2, or by 3 shillings 6 pence, makes 2800; which divide by 3, makes 93 *li.* 1:3. Or otherwise, if 36 pence be 80 *li.* what is 42 pence? Multiplie 80 by 42, and divide by 36, makes 93 *li.* 1:3 of a pound as before.

If in one ell of cloth sold for 3 shillings 2 pence, there were gained after the rate of 20 pound

10 pound in the hundred, what did that ell of cloth cost? Divide 385, or 38 penny 1:2 by 110, makes 35 pence, that the ell cost.

$$\begin{array}{r} \text{£} \\ 3850 \quad (35 \text{ d.} \\ 1100 \end{array}$$

11

Ex. If one Yard of Holland cloth cost 2 s. 11 d. how many Yards shall I buy for 34 li. 6 s. put it into pence, makes 8232 pence; which divide by 35 d. makes 235 Yards, 1:5 Yard.

How to gain any rate in the hundred you d fire.

Put your price that one yard, ell, pound, or piece doth cost you, into pence; and then for 10 pound in the hundred, take the tenth part of that sum, which is the same number, placed one place nearer to the right hand, and that is the profit or interest; which added up into the price given, makes the price to sell one yard, pound, ell, or piece, to gain 10 li. in the hundred readie monie.

Example.

If one ell of Holland cloth cost 3 shillings 9 pence, how may I sell to gain 10 li. per cent. readie

readie monie? Put 3 s 9 d. into pence, makes 45 pence: then take the tenth part of 45 d. which is 4 pence 5:10, or one half, makes 49 d. 1:2 for the price to sell an ell to gain 10 li. per cent.

Example.

d.	s.	d.	d.
45	makes 4	1	1:2
45	d.		
49	74	s.	d. d.
5	74 makes 6.	9.	2:5
	81		
	1/4		

If your price you would gain, be not 10 li in the hundred, then add 2 ciphers to your number of pence given, and multiplie that number by your interest, omitting to multiplie by the ciphers, and the product under the line is your interest or gain, which added up into one sum, makes the price to sell one yard, ell, pound, or piece, to gain according to the rate desired, example.

If one pound of Cloves cost 4 shillings 10 pence, how may I sell to gain 9 li. per cent. readie monie? Put 4 s. 10 d. into pence, makes 58 d. then add 2 ciphers, makes 5800, which multiplie by 9 makes 522 or 5 pence, 2 100 parts of one pennie; which added up to the upper

upper numbers, is $6\frac{3}{4}$ d. 22: 100 parts of one
pennie, or 5s. 3d. 1: 5 of a pennie for the price
to sell one, to gain 9 li. in the hundred,

At 9 pound in
the hundred.

5800

1.9

322

6322

At 12 pound in
the hundred,

47100

12

494

7

52/64

or 5s. 3 d. 22:1 00.

or 4 s. 2 d. 16:25 d.

If one piece of Raysons cost 18 s. 9 d. how may I sell to gain 18 % in the hundred, ready monie? Put your monie into pence, makes 225 pence, to which add 2 ciphers, makes 22500; which multiplie by 18, makes 4050, or 40 d. 6. which added into the price, makes 265 d. 6. for the price to sell one piece to gain 18 % in the hundred

Example.

22500

18

18.00

225

$\begin{array}{r} 21 \\ 263 \\ 222 \\ 1 \end{array}$
 (22 s. 1 d. ob. for the price of 1 piece.

A Merchant lent wares for 10 pound in the hundred profit for 12 months, and at the end of 6 months he received principal and interest 356 li. the question is, what was the sum lent? Answer: add 2 ciphers to 356 li. and divide by 105 pound, which is 6 months interest and principal, makes 339 pound, 1:2 parts of a pound for the sum lent.

Example.

$\begin{array}{r} 4155 \\ 25600 \\ 10598 \\ 100 \end{array}$
 li. (339 li. 5:105.

Interest for $\begin{array}{r} 3390'5 \\ 3:905 \end{array}$ years.

Interest for $\begin{array}{r} 169'525 \end{array}$ 1:2 year.

The proof. $\begin{array}{r} 356'00 \end{array}$ Equation.

Equation of Payment.

The Rule of Payment is to bring divers payments due at severall dayes, to be paid at one entire payment.

A Merchant is to pay at divers payments 600 pound : *viz.* 200 *li.* present, 200 *li.* at 8 months, 140 *li.* at 6 months, and 60 *li.* at 2 months : now he is willing to pay all at one payment ; what time must be given? The ready monie being omitted , set the rest as numerators thus, 200: 600: 140: 600: 60: 600 parts, which in their least terms abbreviated, makes 1:3 7:30 and 1:10. Now multiplie 1:3 by 8, makes 2, and 2,3; secondlie, 7:30 by 6, makes 1 and 2:5; thirdlie, 1:10 by 2, makes 1:5; total is 4 months, and 4:15 of a month for the time sought.

Ex. mple.

200:8	3	
105:7	5	2
15:1	5	328 (4 months, 20:75.
<hr/>		78
320	75	

A Merchant hath owing him 752 *li.* to be paid 200 *li.* present; 200 *li.* at 3 months, 130 *li.* at 5 months, and the rest at 12 months;

now

Equation of Payment.

249

now at what time ought this monie to be paid all at one payment?

Example.

200:752	130:752	212:752
3	5	12
600	650	2664
2664		
650	15	months. dayes.
600	3014	(5. 6.
3914	382	

A Merchant hath owing unto him 782 li. 12 s. to be paid 1:3 at 4 months, 1:2 at 7 months, the rest at 12 months, what time must it be all at one payment.

Months.

1:3	4	1	1:3
1:2	7	3	1:2
1:6	12	2	0:0
		6	5:6

Makes 6 months, 5:6 of a month.

Wines worth 14 pound readie monie are sold for 16 pound, to pay 1:3 at 3 months, 1:2 at 4 months, and the rest which is 1:6 at 12 months; the question is, what is gained in 100 pound in 12 months:

months,

Equation of Payment.

	<i>Months.</i>		
1:3	3	1	0.0
1:2	4	2	0.0
1:6	12	2	0.0
			<hr/>
			5 0.0

Makes at 5 pound in the hundred.

Sugars worth 28 *li.* readie monie are sold for 25 *li.* to pay 1:5 readie monie, 1:8 at 4 months, 3:10 at 7 months: 3:8 at 15 months; the question is, at what rate *per cent. per annum* they were sold?

	<i>Months.</i>		
1:8	4	0	1:2
3:0	7	2	1:10
3:8	15	5	5:8
			<hr/>
			8 9:40

Makes 8 pound, 9:40 *per cent.*

Allegation Mediall

Allegation is an art teaching to combine or knit together divers things unequal-
lie prised, and thereby to find an equal price
of any part of the said mixture. Allegation
Mediall

Medial is that which by the augmenting the quantitie of every severall portion to be mixed by his own price, and dividing the sum of all the Products by the total of the severall portions to be mixed, findeth the thing sought.

Example.

Three severall sorts of Barlie are to be mixed; viz. 34 bushels at 18 *d.* and 76 at 20 *d.* and 100 at 22 *d.* the question is, what one bushel of that mixture will be worth? First multiplie each number by his price, viz. 34 by 18, 76 by 20, and 100 by 22, makes 612, 1520, and 2200, the Total is 4332: then add the number of bushels into one sum, makes 210; by which divide 4332 *d.* makes 20 pence, 132:21 of one pennie for the price of one bushel so mixed.

3. Example.

If you will mix 30 gallons of Sack at 4 *s.* a gallon, with 150 gallons of white Wine at 2 *s.* the gallon, what will a gallon of that mixture be worth? Multiplie 30 by 4, makes 120 *s.* also 150 by 2 *s.* makes 300 *s.* Total is 420 *s.* then add 30 and 150 makes 180 Gallons; by which divide 420 *s.* makes 2 *s.* 1:3 of a shilling, or 2 *s.* 4 *d.* for the price of one gallon so mixed.

Example.

3. *Example.*

Admit there were 6 portions of silver of 7 ounces fine, 12 of 8 ounces fine, and 25 of 10 ounces fine, which are to be mingled with 10 pound of Copper, what is a pound of that mixture worth? For answer; multiplie 6 by 7, makes 42; also 12 by 8, makes 96, and 25 by 10, makes 250, the total 388, which being divided by 53, the total of 6, 12, 25 and 10, makes 7 ounces, 17:53 of an ounce; and so much fine is a pound of that mixture.

4. *Example.*

A Merchant hath 6 several sorts of Spices, of which he will sell of each an equal quantitie, of several prices, for the sum of 323 *li.* 8 *s.* viz. Cinnamon large at 4 *s.* 6 *d.* a pound; Nutmegs Case at 3 *s.* 8 *d.* a pound; Large Maces at 8 *s.* a pound; and Pepper Case at 2 shillings 2 pence a pound, Pepper Callico at 22 pence the pound, and Ginger large at 10 pence a pound; the question is, how many pound he must have of each to make the just sum of 323 *li.* 8 *s.* Answer. first. Put your monie into shillings, makes 6468 *s.* Secondlie, Put all your prices of the spices into one sum, and by that sum, which is 21 shillings, divide 6468, makes 308 *li.* which he must sell of each.

Example.

Example.

	s.	d.
1	4	6
2	3	8
3	8	0
4	2	2
5	1	10
6	0	10

x *li.*
 6468 (308
 2xxx
 22

21 00

	<i>li.</i>	s.	d.
1	69	6	0
2	123	4	0
3	56	9	4
4	33	7	4
5	28	4	8
6	12	16	8
323		8	0

Allegation Alternate.

Allegation Alternat is that, which altereth the places of such excesse as commonlie fall between the mean price, and the extreames, in which counter-change, if the extreames be equal, then the difference between the mean price, and lesser extream, is to be set against the greater extream, and of the contrarie if otherwise.

Example.

1 Example.

White Wine of 20 *d.* the gallon is to be mixed with Sack of 3 *s.* a gallon, so that there must be mixed 300 gallons to make the price to be but 2 *s.* 4 *d.* the gallon, the question is, how much of each sort must be taken.

The numbers set down, as in this Example thus, the difference of 20 the lesser ex-

	d.	
36	—	8
20	—	8

stream from 28, is 8; also the difference of 36 the greater extream is also 8, so that I find you must take as many of one sort as of the other, to make this mixture: *viz.* 150 gallons of each sort.

2. Example.

White Wine of 16 *d.* a gallon is to be mixed with Sack of 40 *d.* the gallon, how many gallons must be taken of either sort, so that 120 gallons may be of 30 pence the gallon.

The numbers being set down, as in this example, the difference

of 16 the lesser extream from 30 the mean price, there will

40	—	14
16	—	10

remain 14, which I place against 40; then take the difference of 40, the greater extream from

from 30 the mean Price, there will rest 10 to be linked with the lesser extream; wherby I find, that so often as I take 14 gallons of Sack, I must take 10 gallons of White Wine, to make the mixture;

wherefore if 24 gallons be 120, what is ———

$$\left\{ \begin{array}{l} 14 | 70 \\ 10 | 50 \end{array} \right.$$

3 Example.

A certain Clothier is desirous to mingle 144 pound of Wool of 4 sorts, *viz.* Blew wool of 16s the stone, red wool of 11s. the stone, green wool of 12s. white wool of 9s. the stone, how many stones of each shall he take, that one stone of the mixture may be worth 14 shillings?

The counter-change being made, according to the Rule, as in the

Margent, it is plain that so often as you take 5 of blew, 14 you must take 3 of green, and 2 of red, & 2 of White.

$$\left\{ \begin{array}{ll} 16. & 5 \\ 12. & 3 \\ 11. & 2 \\ 9. & 2 \end{array} \right.$$

Therefore if 12 be 144, what

$$\text{is } \left\{ \begin{array}{ll} 5. & 10 \\ 3. & 36 \\ 2. & 24 \\ 2. & 24 \end{array} \right.$$

The End of the first Book.

N

THE

THE
SECOND
BOOK

Containing a Treatise
O F

DECIMAL ARITHMETICK.

Wherein is taught how to work
all manner of operations in
Decimal Arithmetick, more speedy
and easie, than by vulgar
ARITHMETICK.

And first of the *Decimal*
TABLE.

LONDON:

Printed by G. D. for *John Sweeting* at the
Angel in *Popes-head Alley*. 1654.



THE USE OF THE DECIMAL TABLE.

THe Decimal Table following doth begin from one farthing unto a prime, or 2 Shillings: so that if you have a Decimal Fraction given, which doth contain 90625 sixths: search it in the Decimal table, and you shall find it over against 21 pence, 3 farthings, and that is the value of that Fraction given.

Or if you would know how to set out 16 pence half penny in Decimals, search in the Table against 16d. 2q and you shall find 6875 sixths for the Decimal sought.

But if you would set out any number of Shillings from one shilling unto one pound, or 20 shillings, search in this little Table following, and you shall find your desire. As if you would set out 15 shillings in Decimals, you shall find 7 primes, 5 seconds for 15 shillings, and so of any other sum, as in the Example following.

Example,

*Example.**Phil.* | 1:2

1	05
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45
10	50
11	55
12	60
13	65
14	70
15	75
16	80
17	85
18	90
19	95
20	100

q. 1. 2. 3. 4. 5. 6. 7.	q. 1. 2. 3. 4. 5. 6. 7.
1 0010416	6 025
2 0020833	1 0260146
3 0031250	2 0270833
	2 028125
1 0041666	7 0391666
1 0052083	1 0302083
2 0062500	2 03125
2 0072216	3 0322916
2 0083333	8 0333333
1 009375	1 034375
2 0104166	2 0354166
3 0114583	3 0364583
3 0125	9 0375
1 0135416	1 0385416
2 0145833	2 0395833
3 015625	3 040625
4 0166666	10 0416666
1 0177082	1 0427082
2 01875	2 04375
3 0197916	3 0447916
5 0208333	11 0458333
1 0218746	1 046875
3 0229166	2 0479166
3 0239582	3 0489584
6 025	12 05

q.	1.2.3.4.5.6.7	q.	1.2.3.4.5.6.7
12	05	18	075
1	0510416	1	0760146
2	0520833	2	0770833
3	053125	3	078125
13	0541666	19	0791666
1	0552083	1	0802083
2	05625	2	08125
3	0572916	3	0822916
14	0583333	20	0833333
1	059375	1	084375
2	0604166	2	0854166
3	0614583	3	0864583
15	0625	21	0875
1	0635416	1	0885416
2	0645833	2	0895833
3	065625	3	090625
16	0666666	22	0916666
1	0677082	1	0927082
2	06875	2	09375
3	0697916	3	0947916
17	0708333	23	0958333
1	0718746	1	096875
2	0729166	2	0979166
3	0739582	3	0989584
18	075	24	1000000



THE SECOND BOOK,

Containing a Treatise of
Decimal Arithmetick:

*The Declaration of the parts of the Deci-
mal Table.*

FIRST the Decimal Tab'e in the left Margent contains certain numbers in great and small Letters; first from one farthing unto one prime, or tenth of a pound, or 2 shillings. Then from one prime for every shilling unto one pound sterling, or 20 shillings.

First, beginning in the left Margent, is set down one farthing in the uttermost parallel to the left hand, in the first parallel of the Table, and so continuing from 1 farthing to 1 prime or 2 shillings; and over against every Number on the left side in a right line towards the right hand is contained the Numbers in Decimals, answering unto every farthing, from 1 farthing to 1 prime or 2 shillings;

N 5

lings ; and in the upper margin in the head of the Table is contained the true Denominations of the said numbers in primes, seconds, thirds, fourths, fifths, sixths, and sevenths, which are small enough to work any question exact to a small Fraction of one Penny in a sum of great value, as shall appear by examples following. But here you shall note, that all the numbers in the said Table cannot be exact and perfect.

To find the value of a Decimal Fraction in the parts of Coyn.

Suppose a number given to be 2 seconds, 4 thirds, 5 fourths, and 7 fifths, and you desire to know the true value thereof in Coin; set down your numbers, as in the example following, and mark your prime line, and then multiply the fraction by 240, the pence in one Pound, and the numbers that arise by Multiplication over the Prime line are the sum of Pence, the value of that fraction given, and the remainder on the right hand of the Prime line is the fraction of one penny.

Example.

Example.

$$\begin{array}{r} 1.2.3\ 4.5 \\ 0\ 2\ 4\ 5\ 7 \\ 2\ 4\ 0 \end{array}$$

$$\begin{array}{r} 4\ 9\ 8\ 2\ 8\ 0 \\ 9\ 1\ 4 \end{array}$$

Pence 5 | 89680 8968:10000 of a d.

Here by multiplication of 2457 fifts by 2,0 Pence, I find 5 Pence is gone over the Prime line, and there remains 8968:10000 parts of one penny. Now to know the value of that fraction in farthings, multiply the same by 4, and so many as go over the Prime line, are farthings, the rest is the fraction of a farthing.

Example.

$$\begin{array}{r} 8968 \\ 4 \end{array}$$

$$3\ 5872$$

Numeration in Decimals.

If you have a number to be expressed in Decimals of Money or Coyn sterling, learn first by the Decimal Table how to express your Coyn, from one Penny unto one Pound sterling

sterling, or from 1 farthing to 1 pound sterling, for which the Table going before was calculated. If you would know the manner how to calculate the said Table, divide one pound; adding 7 cyphers unto it, by your part you would know how to set forth in decimals: as if you would know how a farthing will stand in decimals, divide 1 pound with cyphers by 960, the number of farthings in one pound sterling, and the quotient will be the numbers in decimals, signifying one farthing.

Example.

$$\begin{array}{r}
 6 \\
 4\cancel{1}644 \quad \dots 7 \\
 1000000 \cdot 0 \quad (10416 \\
 9696610 \\
 9999
 \end{array}$$

So that I find, that dividing of 1 pound by 960 farthings, the quotient is 1 third, 0 fourth, 4 fifths, 1 sixth, and 6 sevenths: for if you should have proceeded, adding more cyphers, the quotient would have been alwayes 6, because I see the number remaining to be the same it was at the last, that is, 64. And although a farthing cannot be set out exact in Decimals, yet it will serve in Multiplication and Division: for in 10000 yards or ells, it will not differ

fer 1 penny, as shall appear afterwards by examples in their places.

How to set out a penny in Decimals.

Divide 1 penny with cyphers by 240, the number of pence in 1 pound sterling, and the quotient will be a penny in Decimals.

2 Example.

$$\begin{array}{r}
 \text{xx} \\
 466 \quad 3.4.5.6.7 \\
 1000000 \quad (41666 \\
 2444 \quad 0 \\
 22
 \end{array}$$

Here seeing that after I find the first quotient 6, and the remainder 16, as before, I cease Division as needless any further, knowing it will produce 6 in the quotient infinitely, and therefore I put as many times 6 in the quotient as I find expedient and needful, and 1 penny stands thus:

$$\begin{array}{r}
 3.4.5.6.7 \\
 41666
 \end{array}$$

And these and divers other Numbers will not be set exact in Decimals, but yet they will serve to great purpose and exactness in a multitude of questions, in saving an infinite labour in Reduction, and multiplication, and Division.

How

How to break a pound into his exact parts.

Set down 1 pound thus, 10; then take the tenth, which is one Prime, or 2 shillings, which I note thus,

1

1

Then take half of that Prime or 2 shillings, saying, the 1 half of 10 is 5, or the one half of one Prime is 5 seconds, or 1 shilling; then the one half of 5 seconds is 2 seconds, and 5 thirds; saying, the 1 half of 5 seconds is two seconds and 5 thirds, which is 6 Pence: then half of 2 seconds, 5 seconds is one second, 2 thirds, 5 fourths, which doth represent 3 d. in Decimals. Again, one half of 1 second, 2 thirds, 5 fourths, is 6 thirds, 2 fourths, 5 fifths, representing 1 Penny half Penny, or 3 half pence. Again, half of that number is 3 125, or 3 thirds, 1 fourth, 2 fifths, 5 sixths, signifying 3 farthings in Decimals, behold the work.

	2s.	1s.	6d.	3d.
1.		2 50	2.3 25	2.3.4
10	10	5 25	2 5 125	1 2 5
1	5			

	1d. ob.	or 3 farthings.
125	3 4 5	625
625	6 2 5	3 1 2 5

12

It is also very necessary to understand the proportional parts of a Pound, for by them are many questions speedily wrought in Decimals, as shall appear in the examples of Multiplication and Division afterwards.

How to express the value of any number in Decimals

Admit for example this number following is to be expressed according to the computation of Decimal Arithmetick, viz. $3785\frac{725}{1000}$ thirds: then for the expressing the signification of that number in the known parts of Coyn, first mark out your Prime line, to distinguish the whole numbers from the Fractions with a right down stroke with the Pence, and then you shall find the numbers to stand thus, 3785 Pound, 7 Primes, 2 seconds, and 5 thirds; which search in your Decimal Table, and it doth signifie 14 shillings, 6 pence; so that the whole number is 3794 Pound, 14 shillings, 6 Pence; and so of all numbers, for you shall understand, that every Prime doth signifie in value 2 shillings, every second 2 pence, and $2:5$ parts of 1 penny, and every 5 thirds 1 penny, and $1:5$ of one penny, or else every Prime is $1:10$ of 1 Pound, every second $1:100$ part of 1 Pound, and every third $1:1000$ part of 1 Pound, &c. infinitely.

How

How to remove a Decimal number from one place to another.

If you have a Decimal number given: as for *xamp^e*, 3 pence, which doth thus stand in Decimals, 1 second, 2 thirds, 5 fourths; then you desire to know how it will stand in the place of primes, pounds, or in the place of 10^l. or hundreds, or thousands? Remove it one place toward the left hand, and it is 1 prime, 2 seconds, 5 thirds, or in known parts of Coyn 2 shillings and 6 pence. Again, remove them one place more towards the left hand, and it will be 1 pound, 2 primes, 5 seconds, or 1 pound, 5 shillings. Again, remove one place more, and it will be 12 pound, 10 shillings. Again, remove it one place more, and all your fractions are in whole numbers, and will signifie 125 pound, &c.

$$\begin{array}{r}
 2s. 6d. \quad 1l. 5s. \quad 12l. 10s. \\
 | \\
 1250 \quad 12500 \quad 125000 \\
 l. \quad l. \quad l. \\
 125 | 0000 \quad 12500000 \\
 l. \\
 12500000
 \end{array}$$

And this Rule is very necessary to be well and perfectly understood; for by it any price be-

being given of a unite in Decimals, you may speedily know what 100, or 1000, or 10000 will cost at that rate, onely by adding of one, two, or more cyphers.

As for example, if one ell cost 6 shillings 3 pence, what will 100 ells cost at that rate? first, set out your price in Decimals thus, 3 primes, 1 second, 2 thirds, 5 fourths, and adding of two cyphers, because 100 hath 2 cyphers, the sum will be $31\frac{25}{100}$: and because your fractions were fourths, cut off 4 figures and cyphers towards the right hand, or mark your prime line, and you shall find that 100 ells will cost 31 pound, 5 shillings at that rate.

Example.

$$\begin{array}{r|l} 6 & 1.2. \\ 31 & 2500 \end{array}$$

If the numbers of the price given will not be exactly set down in Decimals. As for example, at 7 pence 3 farthings a yard, what will 100 yards cost? Set down your price as near as may be, by your Decimal Table, which is 3229 sevenths, adde unto it two cyphers, makes 3229160 ; and because your fractions are sevenths, cut off 7 figures, and there will be 3 pound, 4 shillings, 7 pence.

Example.

2 Example.

$$\begin{array}{r|l} 1 & 1.2.3.4.5.6.7. \\ 3 & 2.2.9.1.6.0.0. \end{array}$$

And thus much shall suffice for Numeration in Decimals, and I will now proceed unto the second Rule of Arithmetick, viz. Addition in Decimals.

CHAP. II.

Addition in Decimals of Coins.

IF you have divers several numbers given in Decimals to be added together into one sum, place them in order every one right under his like denomination, or kind, Integers under Integers, Primes under Primes, Seconds under Seconds, &c. Then begin your Addition at the right hand at the least Denomination first, and ad them all according to the Rule of Addition, as if they were all whole numbers, alwayes having a care to mark out your prime line, and the total of your Addition will shew you the just value of those whole numbers and fractions.

1 Example.

1 Example.

<i>Integers.</i>	1.2 3.4.5
3576	7 2 5 0 0
2400	0 3 2 5 0
7206	5 1 2 5 7
3278	6 3 7 5 6

 16461 | 9 0 7 6 3
Total is 16461 *l.* 18*s.* 1*d.* 3*q.*

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
Here the first number is	3576	14	6	0
The second number is	2400	00	7	3
The third number is	7206	10	3	0
The fourth number is	7278	12	9	0
The total sum is	16461	18	1	3

CHAP. III.

Subtraction in Decimals.

IF you have two numbers in Decimals, the one to be subtracted from the other, place them above one the other, as in Addition, the greater numbers in the upper part, and the smaller number right underneath, and then subtract them as if they were whole numbers and

and note down the remainers each in their proper places, as in this example.

1 Example.

	li.	1.	2.	3.	4.	5.
Lent.	78569	7	8	5	6	3
Paid.	69587	0	6	2	5	0
<hr/>						
Rest.	8982	72	13			
<hr/>						
Proof.	78569	7	8	5	6	3

	li.	s.	d.	d.
The proof, Lent.	78569	15	8	1:2
Paid.	69587	1	3	0:0
<hr/>				
	8982	14	5	1:2

2 Example.

	L.	1.	2.	3.	4.	5.
Lent.	38057	3	2	5	6	7
Paid.	29730	9	6	2	5	4
<hr/>						
Rest.	836	3	6	3	1	3
<hr/>						
Proof.	38057	3	2	5	6	7

The

The Proof in Coin.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
<i>Lent.</i>	38057	6	6
<i>Paid.</i>	29730	19	3
<hr/>			
<i>Rest.</i>	8326	7	3
<hr/>			
<i>Proof.</i>	38057	6	6
<hr/>			

CHAP. IV.

Multiplication in Decimals.

IF you have two numbers given to be multiplied in Decimals, place your Multiplicand uppermost and your multiplier right underneath, as if the same were absolute whole numbers, and no fractions at all; and when your numbers are placed, mark how many fractions your two numbers do contain, and note that number down, and multiply according to any of my former instructions in the first book; and when the product is gathered, cut off your prime line, just so many figures and cypners as your multiplicand and multiplier had fractions between them, and the work is ended.

Example.

Example.

If you will multiply $758\overline{)325}$ thirds, by $385\overline{)7}$ primes, I place first my numbers, and then I find my multiplicand to have 3 fractions, to wit, primes, seconds, & thirds, and I find my multiplier to have one fraction, only primes, which makes 4 fractions, and so many figures I cut off from the Product.

Example.

$$\begin{array}{r}
 1.23 \\
 758321 \\
 \underline{3857} \\
 5308275 \\
 3791625 \\
 6066600 \\
 2274675 \\
 \hline
 292485\overline{)9525}
 \end{array}$$

2 Example.

If you will multiply 34 pound 5 shillings 3 pence, by 16 pound, 6 shillings, 6 pence, set them in Decimals, $34\overline{)2625}$ fourths, by $16\overline{)325}$ thirds, and multiply them together, and cut from the Product 7 figures to the right hand, and the Product will be 559 pound, 6 shillings, 8 pence, ob. almost.

Example.

Multiplication.

277

Example.

$$\begin{array}{r}
 1.2.3.4 \\
 \hline
 342625 \\
 16325 \\
 \hline
 1713125 \\
 685250 \\
 1027875 \\
 2055750 \\
 342625 \\
 \hline
 559|3353125
 \end{array}$$

3 Example.

If you will multiply 758 Integers by 3 primes, 7 seconds, 5 thirds, which is by 7 shillings, 6 pence, place them as in the last example, and from the Product cut off the 3 figures for the 3 fractions, and the total is 284 pound, 5 shillings, the sum that 758 ells will cost at 7 shillings, 6 pence an ell, &c.

Example.

$$\begin{array}{r}
 758 \\
 375 \\
 \hline
 3790 \\
 5306 \\
 2274 \\
 \hline
 284|250
 \end{array}$$

IF

If you will multiply Fractions by Fractions in Decimals ; as to multiply 5 primes, 2 seconds, 6 thirds, 3 fourths, by 7 primes, 2 seconds, 5 thirds ; set them as before, and cut off 7 figures.

4 Example.

$$\begin{array}{r} 1.2.3.4 \\ \hline 5.2.6.3 \\ 7.2.5 \end{array}$$

$$\begin{array}{r} 2.6.3.1.5 \\ 1.0.5.2.6 \\ 3.6.8.4.1 \end{array}$$

makes 7s. 7d. ob.

| 3 8 1 5 6 7 5

If you will multiply in Decimals by 10, or by 100, or by 1000, &c. set down your numbers, and mark how many Fractions there be in your multiplicand, and then adde so many cyphers as your multiplier hath to the right hand, and cut off your prime line, and the work is ended ; as in this example.

Example.

$$\begin{array}{r} 1.2.3.4.5.6 \\ 7.8.5.6.0.2.5 \\ 100 \end{array}$$

$$\begin{array}{r} 785.602500 \\ \hline 785\text{ l. } 12\text{ s. ob.} \end{array}$$

How

How to change any Fraction given into Decimals.

Admit there be a Quotient of a Division, which 358 pound, 126:255 of one pound, which Fraction you would turn into Decimals; adde a Cipher to your Numerator of your fraction, makes 1260: but because your number will not be evenlie divided by your Denominator 255, therefore adde more Ciphers, and then divide the number by 255, makes 49411 fiftths in Decimals to be joined with the whole numbers 358|49411 fiftths, and are now fit for Multiplication and Division in Decimals.

5 Example.

$$\begin{array}{r}
 1034 \\
 240505 \quad 1.2.3.4.5 \\
 126000000 \quad (49411 \\
 2555555 \\
 25555 \\
 222
 \end{array}$$

Admit there be a Fraction to be set out in Decimals thus, it is required to know what 156 yards of cloth will cost at a 196:784 of a pound for one yard. Add to 156.2 or more Ciphers, and divide by the Denominator 784, makes 25 seconds, by which multiplie 156 yards, makes 39 pound.

1-0

6 Example.

6 Example.

156	00
25	3320 12
<hr/>	296000 (25
780	7844
312	78
<hr/>	
39100	

7 Example.

For the proof of this work, multiply 156 by 196, makes 305.76; which divided by 784 makes 39 pound, as before.

196	00
156	0750 !.
<hr/>	30576 (39 the proof.
1176	7844
980	78
196	
<hr/>	
30576	

CHAP. V.

Division in Decimals.

IF you will divide any numbers in Decimals, either whole numbers by Fractions, or fractions by whole numbers, or whole numbers and fractions by whole numbers and fractions; set them down according to the Rules in Decimals in the operations before-going. As for example, a certain Merchant bought him as much Cloth as cost him 284 pound, 5 shillings, at 7 shillings, 6 pence an ell, the question is, how many ells he had for his money? To do this, or any other the like question, divide your sum of money 284 pounds, 5 shillings by seven shillings 6 pence, and the quotient will shew you what number of ells, and parts of an ell (if any be) were bought for that money.

1 Example.

0	
280	
284250	Ells.
284250	(758
37558	
377	
3	

0 2

How

*How to divide the smaller number
by the greater.*

If you will divide 34 pound, 6 shillings, amongst 36 men; place your numbers adding 3, or 4, or 5 ciphers; and then divide by 36, makes 95277 fifts; or in coin 19 shillings, 6 pence, ob. for everie mans portion,

2. Example.

724	1.2.3.4.5
19588	(95277, or 19 s ob. 1.4
3430000	
36660	
333	

What is the quotient of 724 pound, divided by 3:4 of a unite, or 15 shillings? answer: divide 724 by 75 seconds, makes 965 1:3; for trial whereof, multiply 965 1:3 by 15 shillings; or 75 seconds, makes 724, as in the example.

2. Example.

2 Example.

$$\begin{array}{r}
 422 \\
 49085 \\
 724000 \\
 75555 \\
 777
 \end{array}
 \begin{array}{r}
 1.2.3 \\
 (965) \overline{) 333} \quad \text{or } 965 \quad 1:3 \\
 75 \\
 \hline
 4825 \\
 67555 \\
 2
 \end{array}$$

The proof. $724 \overline{) 00}$

This last question is in effect no other but as the former : for if I shall say, a Merchant buyes broad-cloth, costs him 724 pound at 15 shillings, or 3:4 of a pound one yard, the Question is, what number he had for his money? and by division I find he had 965 yards, and 1 third part of a yard, as is proved in the example ; and so dividing 724 by 3:4, the quotient is 965, 1:3.

3 Example.

If you will divide the Product of the second example in multiplication, which was $559 \overline{) 3353125}$ sevenths by 16325 for the proof of that work, which ought to bring out the Multiplicand $34 \overline{) 2625}$; or rather if

O 3

you

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you will divide 559 pound, 6 shillings, 8 pence, *ob.* almost by 16 pound, 6 shillings, 6 pence, the quotient will be 4 pound, 5 shillings, 3 pence.

Example.

$$\begin{array}{r}
 \begin{array}{r}
 x' 048 \\
 4 \overline{) 220x} \\
 \hline
 69 \overline{) 58086}
 \end{array}
 \quad
 \begin{array}{c}
 1. \mid 1. 2. 3. 4. \\
 16 \ 325 \overline{) 55} \mid 2253425 \ (34 \mid 2 \ 6 \ 3 \ 5 \\
 \hline
 003 \ 0000000 \\
 \hline
 489 \overline{) 7500005} \\
 65 \overline{) 305552} \\
 3 \overline{) 26966} \\
 \hline
 9721 \\
 38
 \end{array}
 \end{array}$$

The 559|3353125 *proof.*

How to find the Prime line in any Division Decimal, or to find the true Denomination of the Quotient.

In any Division Decimal, alwaies mark out your prime line in your Dividend with a streight down line with the pen, then set your Decimal fractions in primes, seconds, thirds, fourths, &c. beyond the line; also do the like in your Divisor, and then mark how often you may remove your Divisor, that the whole

whole numbers of your Divisor may stand under the whole numbers of your dividend, and so many figures shal your quotient have in whole numbers, the rest are to be marked with pricks in the quotient for primes, seconds, thirds, &c.

If you will divide 938 | 61375 fifties by 34 pound, 35 seconds, then place them with pricks, as in the example following. I find, having placed my divisor underneath my dividend, that I may remove my divisor twice under the whole numbers of my dividend, and therefore I conclude, the first 2 numbers of my quotient will be whole numbers, which I mark from the rest of the numbers in the quotient with a line, and then dividing according to the former instruction, you shall find the quotient will be 17 pound, 3 primes, 2 seconds, and 5 thirds.

Example.

17					
251168	li.	1.2.3	l.	s.	d.
938 61375	(27 325	or	27	6	9
34 355555					
343333					
3444					
33					

O 4

2 Example.

2. Example.

If you would divide 15554 pound, 2 primes, 5 seconds, or 5 shillings, by 45 pound; place them as in the example following, and you shall find that there will be in the quotient 3 figures in whole numbers, and the rest will be primes and seconds, so that dividing of 15554 pound, 5 shillings, by 45 pound, the quotient is 345 pound, 13 shillings.

Example.

2 2					
2029		l. 1.2		l.	s.
15554	5	(345	65	or 345	13
455555					
4444					

3 Example.

If the greater number of your Divisor be primes, then the figures of your whole numbers in the quotient will be once greater in value, than the times you can remove your Divisor, as if you would divide 241 pound, 5 primes, by 7 primes, then whereas you can remove your Divisor but two times under the whole numbers 241, yet you shall have 3 numbers in the quotient in whole numbers, because your first figure of your divisor is primes;

primes; so that in dividing 241 *li.* 5 primes, by 7 primes, I find the quotient will be 345 pound, or integers; and so many yards, at 14 shillings a yard, which is 7 primes, will 241 pound 10 shillings buy.

Example.

$$\begin{array}{r} 22 \quad \text{yards or pounds} \\ 241 \overline{) 8} \quad (345 \\ 777 \end{array}$$

4 Example.

If you will divide 16 pound, 875 thirds, which is 16 *li.* 17 *s.* 6 *d.* by 375 thirds, which is 7 *s.* 6 *d.* or which is all one, imagine there is as much cloth of 7 *s.* 6 *d.* a yard as cost 16 pound, 17 shillings 6 pence; the question is, how many yards was bought for that money? placing your numbers in the example following, I find 45 yards is the answer to the question.

Example.

$$\begin{array}{r} x \quad \text{yards,} \\ 28 \overline{) 875} \quad (45 \\ 3755 \\ 37 \end{array}$$

5 Example

If you will divide whole numbers & fractions by whole numbers, place the whole numbers and fractions uppermost, and mark out your prime line, and then set your Divisor under-neath the lowest figure in value of your Divisor, will shew you what is the denomination of the first figure of your quotient. As if you will divide 13 *l.* 95 seconds by 45; or which is all one, if you shall say, If 45 pieces of figs cost me 16 *l.* 19 *s.* what did one piece cost? divide 13|95 seconds by 45, makes 31 seconds, or 6 *s.* 2*d.* 2:5 of a penny for the price of one piece. And in this sort the price of any number of yards, els, or pounds, being given it in dividing by the number of yards, ells, or pounds, the quotient will be the price of one; and by this Rule you save a labour of Reduction, alwaies dividing the price by the number given, the greater by the lesser, or the lesser by the greater.

Example.

4	I	2	s	d	d.
33 65	(3	2	or 6	2	2 5
485					
4					

6 Example.

6 Example.

If 456 ells of Cloth cost 575 pound, 7 primes, what will one ell cost? divide 575 pound, 7 primes by 456 ells, makes 1 pound 2625 fourths, or in coyn, 1 pound 5 shillings, 3 pence for the price of one ell.

$$\begin{array}{r}
 x \\
 2822 \\
 119548 \quad \text{L.} \quad 1234. \quad \text{L.} \quad \text{s.} \quad \text{d.} \\
 575 \overline{) 700} \quad (1 \overline{) 2625} \text{ or } 1 \quad 5 \quad 3 \\
 4 \quad 566666 \\
 45555 \\
 444
 \end{array}$$

Reduction in Decimals.

If you will reduce 75 pound, 12 shillings, 9 pence into Decimals, enter your Decimal Table, and for 12 shillings, find six primes; then look for 9 pence, and you shall find 375 fourths; so the total is 75 pound, 6375 fourths, and are now fit and apt for any Decimal operation.

If you multiplie and divide 84 pound, 13 shillings, 6 pence, by 17 pound, 3 shillings, reduce them into Decimals by the Table, makes for 84 pound, 13 shillings, 6 pence, 84:675, and for 17 pound, 3 shillings, 17:15, and

and are now fit to be multiplied or divided one by the other.

If you will reduce 189:756 parts of 1 pound into Decimals; divide 189, adding 3 ciphers to it, by 756, makes 25 seconds for that Fraction in Decimals: And now for example, if 158 ells of cloth and 189:756 parts of an ell cost 70*l.* 2*s.* 6*d.* what will 640 ells cost at that rate? Now according to vulgar Arithmetick, either I must reduce 158 ells 189:756 parts of an ell into 756 parts, or otherwise I must reduce the Fraction into his least terms, makes 1:4; then I multiply or reduce 158 ells into fourths, makes 633 fourths for the first number in the Golden Rule. Secondly, reduce 79 pound, 2 shillings, 6*d.* into pence, makes 18990 pence for the second number; then put 640 ells into fourths makes 2560, fourths; then multiply 18990 by 2560, makes 48614400; which divide by 633, makes 320 pound.

Example.

50	
4306	4
48614400	(76800
633333	24440
63333	22
668	

The same Example wrought by Decimals.

If 158 ells 1:4 ell cost 79*l.* 2*s* 6*d.* what will 640 ells cost at that rate? Place them in decimals thus; if 158|25 seconds cost 79|125 thirds, what 640 ells? Multiplie 79|125 thirds, by 640, makes 50640000; which divide by 15825. makes 320*l.* the quotient.

Example.

1.2.3.		
79 125		
640	3295	1.
	50640000	(320
3165000	1582555	
474750	15822	
	158	
50640000		

Or otherways.

Divide 15825 by 79125, adding one cipher makes 2 primes for the quotient; wherefore I conclude, that one half of 640 pound, which is 320*l.* is the answer to the question demanded. Also divide 79125 by 15825, the quotient is 5 primes; by which multiplie 640 pound, makes 320 pound for the answer to the question, as before.

If a Phillips Dollar be worth 4 shillings 8 pence,

pence, what are 465342 Dollars worth in sterling money? Answer. Multiplie 465342 by 2 primes, which is 4 shillings, and take the sixth part of that product, and adde unto it, makes 1085798 primes for the answer.

Or otherwise; Multiplie by 2 primes, and 1:3 of a prime, because 8 pence is 1:3 of a prime, and both waies will produce the same answer.

Example.

465342	465342
2 1:6	2 1:3
93068 4	93068 4
15511 4	15511 4
108579 8	108579 8

If a common Dollar be worth 4 shillings, and a Princes Dollar be worth 4 shillings 6 pence, how many Princes Dollars will pay for 7584 common Dollars? Multiplie 7584 by 4 s. and divide by 4 s. 6 d. makes 6741 Dollars and 7 seconds, and 5 thirds will remain, which is 18 pence; so that I conclude, 6741 Princes Dollars at 4 shillings 6 pence a piece will pay for 7584 common Dollars, and there will remain 18 pence.

Example.

Example.

7584	100000	Dollars 23
2	1516800	(6741 75
<hr/>	225555	
15168	2222	
	22	

In 654 pound, how many Dollars of 3 shillings a piece? Adde to Cyphers to 654 makes 65400, because 3 shillings hath 2 fractions in Decimals, *viz* primes and seconds, which is one prime and 5 seconds, by which divide 65400, makes 4360 Dollars at 3 shillings a piece.

Example.

5	1 Dollars.
65400	(4360
25555	
222	

In 756 pound, how many Dollars of 3 shillings 9 pence a piece? Adde 4 Cyphers to 756, makes 7560000; which divide by 1875, which is 3 shillings 9 *d.* in Decimals, makes 4032 Dollars. Behold the Example following.

Example.

Example.

$$\begin{array}{r}
 375 \quad \text{Dollars.} \\
 7560000 \quad (4032 \\
 \times 875555 \\
 \times 777 \\
 \times 88
 \end{array}$$

If I do sell 346 yards of Velvet for 298 pound, 8 shillings, 6 pence, how do I sell one yard? Answer, divide the price by the quantity of yards in Decimals, makes 1629 fourths, or in coin 17 shillings, 3 pence for the price of one yard.

Example.

$$\begin{array}{r}
 \times \\
 87 \\
 2 \times 663 \quad 1.2.3.4 \\
 298 \overline{) 4250} \quad (8625 \\
 1346666 \\
 3444 \\
 33
 \end{array}$$

Makes 17 shillings 3 pence a yard.

A Merchant would buy several sorts of Spices of several prices, to wit, of 3 shillings a pound, of 2 shillings, of 2 shillings 3 pence, of 1 shilling 7 pence, and of 2 shillings 2 pence

pence a pound, and would have of each a like quantitie, for 324 pound; the Question is, how manie pound he must have of each? First, ad the prices into one sum, makes 11s. by which divide 324l. makes 589, 1:11 of a pound, and so manie pound must he have of each sort.

A Goldsmith sent his servant to the Tower of London, to fetch him 415l. 18s. 9d. in pieces of 6d. of 4d. of 3d. of 2d. of 1d. and of one half penny, and bad him bring of each sort a like quantitie: First, adde all your coin makes 16d. half penny, which in Decimals is 6875 fifths; by which divide 415|9375 fourths, makes 6050 pieces of each sort.

Example.

$$\begin{array}{r}
 24 \\
 51593750 \quad (6050 \text{ pieces of each sort.} \\
 6875555 \\
 68777 \\
 688 \\
 6
 \end{array}$$

Rules of Practice in Decimals.

Set your price given in the Decimal Table of an Unite, be it yard, ell, piece, or pound, and by the price given, multiply the number
of

of yards,ells, pieces,or pounds, and the Product will be the sum that you seek, if you do but mark out the prime line, as shall appear by examples following.

1 Example.

If one pound weight of small Ginger cost 7 pence half penny, what will 112 pound weight cost? Find for 7 pence half penny 3125 fifths, which multiplie by 112 pound, makes 350000; from which cut off five figures to the right hand by the prime lines, & the sum is 3 pound, 5 primes; or 3 pound, 10 shillings, because your multiplicand hath 5 Fractions.

Example.

$$\begin{array}{r}
 2.3.45. \\
 \hline
 3125 \\
 112 \quad 1.23.4. \\
 \hline
 6250 \quad 171 | 2500 \\
 3125 \quad \text{makes } 171 | 7. | 5s. \\
 3 | 125 \\
 \hline
 3 | 50000
 \end{array}$$

How

*How to find the price of any Unite in any place,
of 10, or 100, or 1000, the price of
one being given.*

If the price of a Unite be given at any rate, and from thence you desire to know, what 10, or 100, or 1000, or 10000 wil cost at that rate: Or otherwise, if you desire to know, if you do gain anie rate desired by the pound, and would know at what rate it will be in the 100 pound, or upon exchange from place to place, the exchange of 1 pound being given, you desire to know what 100/. will amount unto? Place your rate or gains given, in Decimals by help of the Table, and then adding of one, two, three, or more cyphers, cutting off your prime line, you shall know your desire, marking the denominations of your fractions, if the least to the left hand be primes, seconds, thirds, fourths, fifths, cutting off your prime line so manie figures from the right hand.

2 Example.

If 1 *l.* sterling be 1 *l.* 14 *s.* 3 *d.* Flemish, what is 100 *l.* sterling worth? Place 1 *l.* 14 *s.* 3 *d.* in Decimals, makes 1 7125 fourths: then because 100 pound hath two Cyphers, makes 1712500: then cutting off 4 figures

4 figures to the right hand, you shall find 171 pound 5 shillings for 100*l.* sterling, to make as appeareth before.

If one ell of Cambrick cost 7*s.* 6*d.* 3 farthings, what will 100 ells cost at that rate? Place 7 shillings, 6 pence, 3 farthings in decimals, makes 378125 sixths, and adding two ciphers for 100, makes 37812500: from which cut off 6 figures to the right hand, makes 37*l.* 16*s.* 3*d.* for the sum that 100 ells will cost.

3. *Example.*

1 2 3 4 5 6.

37 | 812500

Makes 37*l.* 16*s.* 3*d.*

4. *Example.*

1112 | 5000

If one pound or piece cost 1 pound 2 shillings 3 pence, what will 1000 pieces cost? Set 1*l.* 2*s.* 3*d.* in Decimals, makes 11125 fourths, to the which adde ciphers, because 1000 hath 3 ciphers, and from the total cut off 4 figures, makes 1112 pound, 10 shillings, as in the fourth example above.

If one ell of Holland cost 3*s.* 3*d.* what will 343 ells cost? Multiplie 343 by 3*s.* 3*d.* in decimals, which is 1625 fourths, makes 53 pound 14 shillings 9 pence.

5 *Example.*

5. Example.

$$\begin{array}{r}
 1.2.3.4 \\
 | 1625 \\
 | 343 \\
 \hline
 4575 \\
 6500 \\
 48|75 \\
 \hline
 55|7375
 \end{array}$$

6 Example.

$$\begin{array}{r}
 1.2.3 \\
 | 972 \\
 | 775 \\
 \hline
 4860 \\
 6804 \\
 680|4 \\
 \hline
 753|300
 \end{array}$$

If one yard of Velvet cost 15s. 6d. what will 972 yards cost? Find for 15s. 75 seconds; then for 6d. find 25 thirds; total is, 775 thirds, by which multiply 972, makes 753l. 6s. as above in the sixth example.

If one yard of Velvet cost 17s. 7d. 3q. what will 857 yards cost? First find 17s. to be 85 seconds, then 7d. 3q. makes 322916, total is 8822916; which multiply by 857, makes 756l. 2s. 5d. 3q.

7 Example.

$$\begin{array}{r}
 1.2.3.4.5.6.7 \\
 | 8822916 \\
 | 857 \\
 \hline
 6|1760412 \\
 44|114580 \\
 705|83328 \\
 \hline
 756|1259012
 \end{array}$$

8 Example.

$$\begin{array}{r}
 1.2.3.4 \\
 | 1375 \\
 | 758 \\
 \hline
 1|9000 \\
 11|875 \\
 166|25 \\
 \hline
 180|0250
 \end{array}$$

If

If one Dollar be worth 4 s. 9 d. what are 758 Dollars worth in sterling money? Multiplie 4 s. 9 d. which is 2375 fourths, by 758, makes 180 pound, 6 pence, as in the eighth example above.

The price of any number of yards, ells, pieces, or pounds given to find the price of a unite.

If the price of anie number of yards, ells, pieces, or Pounds, be given, set them down in Decimals, adding, 1, 2, or more ciphers, if need require, and divide that sum, or price, by the number of the yards, ells, pounds, or pieces, and the quotient is the price of a unite in whole numbers, primes, seconds, & thirds, without Reduction, as shall appear by examples following: And in this manner you may know what sum of monie was lent, if the Principal and Interest be given at anie rate in the hundred: or you may know if the rate of 1 l. exchange be given for anie place, you may know the value of 100 of that coin in that monie given; and by this rule is to be abbreviated almost all operations of Arithmetick, by finding the value of a unite in anie place desired.

If 542 ells of cloth cost 22 l. 4 d. ob. what cost 1 ell at that rate? Divide 22 | 01875 fifths by 542, makes 40615 sixths, or in Coin 9 d. 3 farthings for the price one ell cost.

1 Example.

1 Example.

$$\begin{array}{r}
 127 \\
 33251 \quad 2.3.4.5.6 \\
 22018750 \quad (40625 \\
 5422222 \\
 54444 \\
 555
 \end{array}$$

If 345 *l.* gain 79 *l.* 12 *s.* what doth 1 *li.* gain? Divide 7660000 by 345 *li.* makes 222028 sixth, or in Coin, makes 4 *s.* 5 *d.* ob. almost, that 1 *li.* doth gain, as in the example following.

2 Example.

$$\begin{array}{r}
 412 \\
 7761 \\
 761010 \quad 1.2.3.4.5.6 \\
 76600000 \quad (222028 \\
 34555555 \\
 344444 \\
 3333
 \end{array}$$

If 756 *li.* 3 quarters, 24 *li.* of Sugar cost 4421 *l.* 12 *s.* what did 1 pound weight cost, accounting 112 pound to the hundred? Reduce 756 *li.* 3 quarters, 24 *li.* in pounds futtle, accounting 112 pound to the hundred, makes

makes 84780 $\frac{1}{2}$. then divide 4421 $\frac{1}{2}$. 12 s. by 84780; makes 5215 fifths, or 12 pence, half penny one ponnnd.

3 Example.

$$\begin{array}{r}
 432 \\
 \times 2568 \\
 \hline
 182402 \qquad 2345 \\
 442160000 \quad (5215 \\
 84788880 \\
 84777 \\
 844 \\
 8
 \end{array}$$

If I sell 1000 pieces of Cambrick for 700 $\frac{1}{2}$. how do I sell one piece? Divide 1000 by 700 makes 1 pound, 42857 fifths 1 pound 8 shillings 6 pence 3 farthings, as in the example following.

Example.

$$\begin{array}{r}
 32645 \qquad \frac{1}{2} \text{ 1. 2. 3. 4. 5} \\
 \times 100000000 \quad (1. | 42857 \\
 \hline
 77777700
 \end{array}$$

If one pound sterling be 1 pound, 14 shillings, 3 pence Flemish, what is 1 pound Flemish worth? Divide 1 pound with ciphers by 17125, makes 11 shillings, 8 pence, 1 farthing almost.

5 Example.

5 Example.

$$\begin{array}{r}
 x \\
 66x \\
 x|37528 \quad 1.2.3.4 \\
 1000000000 \quad (5839 \\
 x7x25558 \\
 x7x222 \\
 x7xx \\
 x7
 \end{array}$$

If 1 l. sterling be 1 l. 14s. 7d. ob. Flemish, what is 100 l. Flemish worth in sterling money? Divide 100 by 1/73125 fifths, which is 1 l. 14s. 7d. ob. in Decimals, makes 57 l. 15s. 3d.

6 Example.

$$\begin{array}{r}
 4x \\
 x070 \\
 x3x987 \\
 x3438558 \quad l. 1.2.3 \\
 1000000000 \quad (57 | 762 \\
 x73355558 \\
 x731112 \\
 x7332 \\
 x77 \\
 x
 \end{array}$$

The Golden Rule in Decimals.

If the number given be pounds, shillings,
 P. and

and pence, set them out in Decimals, and also your number of yards, ells, pieces, pounds, or any other numbers, set them out also in Decimals, and then without Reduction, multiply the third number by the second, and divide by the first, according to the instructions of Multiplication and Division in the former part of this book, and the quotient will be the third number sought.

1 Example.

If 34 ells of Canvas cost 1 pound 4 s. what will 756 ells cost at that rate? Multiply 756 by 1 pound, 2 primes, makes 907 1/2 primes; which divided by 34, adding ciphers, makes 26 1/2 6823 fourths, or in coin; 26 pound, 13 shillings 8 pence.

Example.

$ \begin{array}{r} 756 \\ 12 \overline{) 1512} \\ \underline{1512} \\ 756 \\ \underline{756} \\ 9072 \end{array} $	$ \begin{array}{r} 2 \text{ } 1 \text{ } 1. \text{ } 1. \text{ } 2. \text{ } 3. \text{ } 4. \\ 223882 \text{ } (26 \overline{) 6823} \\ 372000 \\ 3444444 \\ 33333 \end{array} $
---	--

If 112 pound of Indico cost 34 pound, 17 shillings, what cost 789 pound subtil, accounting 100 pound to the hundred? Multiply

• *The Golden Rule.*

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ply 34|85 seconds by 789; makes 27496 l.
65 seconds; which divided by 112 pound,
makes 245 pound, 5058 fourths, or 10 shil-
lings 1 penny farthing.

Example.

1.2		
3485		
789		
<hr/>		
31365	65	
27880	5058	69
24395	77496	6500 (245 5058
<hr/>	xx222	2222
	xix	xix
	ix	ix
27496 65		

If 98 ells of Cloth cost 94 pound, 13 s.
6d what cost 2943 ells at that rate? Divide
the third number by the first, and by the
quotient multiplie the second, and the pro-
duct will be the answer sought.

		1.2.3
	94	675
		3
2943 (3		
982		
	<hr/>	
	284	025
	Makes 284 l. 6d.	

If 112 pound of Sugar cost 5 pound 3 shil-
lings, 9 pence, how many pounds will 124
pound

pound buy at that rate? Divide $5 \frac{18}{75}$ fourths by 112 pound, to find the price of 1 pound, makes $463 \frac{16}{6}$ sixths, or in coin 11d. 1:10 of a penny almost for the price that one pound cost. Secondly, divide 124l. by the price of one Pound; viz. by $463 \frac{16}{6}$ sixths, makes $2677 \frac{1}{3}$ primes, and so many pound he shall have for 124 pound.

If one yard Broad-Cloth cost 16s. 9d. how many yards shall 56 pound buy at that rate? Divide 56l. by 16s. 9d. the price of one yard, makes 56 yards, 9:10 almost.

Example.

$$\begin{array}{r}
 3 \\
 250 \\
 375000 \text{ yards.} \quad \text{yard.} \\
 56000000 (66 \quad 86:100 \\
 8375558 \\
 83777 \\
 837 \\
 8
 \end{array}$$

If 7 yards 1:2 of cloth cost 9s. what will 8 yards 1:3 of a yard cost? Multiply 9 shillings, or 45 seconds, by 8 1:3, makes 375: which divide by 7 yards 1:2, or by $7 \frac{1}{2}$ primes, makes 5 primes, or 10 shillings.

Example

• The Golden Rule.

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Example.

$$\begin{array}{r}
 1 \\
 4 \overline{) 5} \\
 \underline{8} \quad 1:3 \\
 360 \\
 15 \\
 \hline
 375
 \end{array}
 \qquad
 \begin{array}{r}
 1 \quad 3 \\
 3750 \text{ (5, or 10)} \\
 75
 \end{array}$$

If 5 yards 1:2 cost 4s. 8d. 1:4 of a penny, or 56, 1:4, what will 30 yards cost at that rate? Set your 56 d. 1:4 in Decimals, makes 56|28 seconds; which multiply by 30, makes 1687|50 seconds; which divided by 5 yards one half, or 5|5 primes, makes 306 pence 8:10 of one penny for the price of 30 yards, as in the example following.

Examples

$$\begin{array}{r}
 36 \overline{) 28} \\
 \underline{30} \\
 1687 \overline{) 50}
 \end{array}
 \qquad
 \begin{array}{r}
 34 \overline{) 1} \\
 687 \overline{) 50} \\
 55555 \\
 555 \\
 \text{or } 25s. 6d. 4:5 \text{ of a d.}
 \end{array}
 \qquad
 \begin{array}{r}
 d. \quad 1 \\
 (306 \quad 8
 \end{array}$$

If 34 ells 3:4 of Holland cost 3 pound, 6 shillings 1 penny half penny, what will 756 ells 1:2 cost at that rate? Multiply 1 pound, 6 shillings, one penny half penny, P 3 which

308 *Decimal Arithmetick.*

which is $3|30625$ fifths by $756|5$ primes, makes $2501|178125$, which divided by 34 ells, $3:4$, or by $34'75$, makes $71|9763$ thirds, or 71 pound, 19 shillings 6 pence.

Example.

$$\begin{array}{r}
 1.2\ 3.4 \\
 3\ |\ 3\ 6\ 2\ 5 \\
 75\ 65 \\
 \hline
 168125 \\
 201750 \\
 168125 \\
 235375 \\
 \hline
 2543|73125
 \end{array}$$

$$\begin{array}{r}
 6\ |\ 93 \\
 114\ |\ 28 \\
 2543\ |\ 73125 \\
 347\ 55555 \\
 347777 \\
 3444 \\
 33
 \end{array}
 \quad
 \begin{array}{r}
 1.\ |\ 1.2\ 3 \\
 (73\ |\ 20.0
 \end{array}$$

If 346 pound, 10 shillings, gain 32 pound, 8 shillings, what will 75 pound gain at that rate? First multiply $32|4$ primes by 75 makes $2430|0$ prime; which divided by $347|5$ primes makes $7|0129$ fourths, or 7 pound, 3 pence for the answer.

Example.

Example.

324	3	
75	x042	
1620	4 5250	l. 1.2.3.4
2268	2430 00000	(7 0129
2430.0	34655558	
	346668	
	3444	
	38	

The same Question wrought a second way.

Divide 32|4 primes, by 346|5 primes, adding 5 ciphers, and the quotient will be 935 fourths; which multiply by 75, makes 7l. or 0125 fourths, which doth not want one farthing of the former sum

The same Question wrought another way.

Divide 75 pound, adding 5 Ciphers by 346 pound, 5 primes and the quotient will be 21645 fifthths; which multiply by 32|4 primes, makes 7012980, from which abate 6 figures to the right hand, because of your 6 fractions, and the remainder will be 7l. 0126 fourths, &c. as before. And in this manner you may work any Question in the Rule of Three, 3 several waies, and prove the work one by the other.

If 12 shillings do buy 74 pound of Ginger, how much shall I have for 100 pound? Divide 7400, which is the product of 74 by 100, by 12 shillings, or 6 primes, & the quotient will be 12333 pound, 1:3, and so much Ginger shall I have for 100 pound at that rate; or otherwise divide 100 pound by 6 primes, makes 166, 2:3 which multiplie by 74, makes 12333 pound, 1:3, as before.

Brief Rules how to abbreviate your work in the Golden Rule, by marking the proportions between the numbers given.

When as any Question is propounded in the Golden Rule, mark what proportion is between the first and second numbers, or between the first and third numbers, or between the third and second; for if you espie them in any proportion, the Question demanded is very speedily answered, upon the first sight; or yet if you see them not exactly to be even proportionals, yet you may subtract the first from the third, once, twice, or three times, or more, and so often take the middle number towards the answer to the question, and then you need not to multiplie by your whole third number, as you shall see by examples following.

1 Example.

1 Example

If 34 ells cost 2 pound 4 shillings 1 penny, what will 340 ells cost? Here comparing the first and third numbers, one with another, I find the third doth contain the first 10 times, wherefore I multiplie 2 pound 4 shillings 1 penny, by 10, and the total is 22 pound 10 pence, the Answer.

2 Example.

If 82 ells of cloth cost 4 pound 2 shillings, what will 324 ells cost at that rate? Here I find 4 pound 2 shillings in Decimals to be one half of 82, but it standeth one room less in value than 82 doth, so I conclude, that half of 324 one room less is 16 pound, 2 primes, or 4 shillings, the Answer.

3 Example.

If 345 ells of Holland cost 34 pound, 10 shillings, what will 789 ells cost at that rate? Set down 34 pound, 10 shillings in Decimals, makes 34 pound, 5 primes, which is the first number placed but one room lower; therefore I say, if 345 ells cost 34 pound, 5 primes one room more to the right hand, then the third number also will cost 78 pound, 9 primes one room more to the right hand, which is 78 pound 18 shillings.

P 5

4 Example

4 Example.

If 12 ells of cloth cost 2 shillings, 4 pence, 4:5 of one penny, what will 356 ells cost? Place 2 shillings 4 pence 4:5 in Decimals, makes 1 prime, 2 seconds, or 12 seconds, which is the same number, but it stands two rooms lower: therefore I conclude that 356 ells cost the same numbers two rooms lower, which is 3*l*. 11*s*. 2*d*. 2:5 of 1*d*.

If 12 ells cost 12 | 1.2 | 1. 1.2
seconds, what will 355 | 00 | or 3. 5 6
356 |

5 Example.

If 130 ells of cloth cost 26 pound, what will 3759 ells cost at that rate? I find the second number to be twice the first, but it stands one place nearer the right hand; therefore I conclude, that the third number will cost twice as much in his lower room, which is 751 pound 16 shillings.

If 130 cost 26 pound, what cost 3759?

3759 | 1. |
375 | 9 | 751 | 8
26 | 2 |

751 | 8

6 Example.

6 Example.

If 75^{ells} 1^{half} cost 7*l.* 11*s.* what will 328¹/₁₂ seconds cost? Set them down in Decimals, and you shal find them to stand thus, 75¹/₅ primes for the first number, and 7¹/₅₅ seconds for the second number, which is the same one room nearer the right hand: so I conclude, that the third number will cost 32¹/₈₅ seconds, which is 23 pound 17 shillings.

Example.

Ells 1.2

75 | 5

7 | 5 5

1.2

328/50

32/8 5

The answer. 32l. 17s.

1 Example.

If 356 ells of Canvas cost 38 pound, 12 shillings 1 penny, what will 740 ells cost at that rate? First, divide 740 by 356, the quotient will be 2, and therefore I take twice the price given for that quotient, and then whereas before I should have multiplied 38 pound, 12 shillings, 1 penny by 740, I shall need to multiply it but by 28 the remainder, and divide it by 356, makes 3|0368 fourths, to be added to the former sum, and the total will be as in the example following.

Example.

Example.

	<i>l.</i>	<i>s.</i>	<i>d.</i>		<i>d.</i>
	38	12	1	38 6	1
	2			2 8	

28

740 (2

356

77 4 2

3 0 8 | 8:4

308 | 8

772 | 1166

 80 4 10 | 1:41. 1080 | 9166

300

124376

l. 1. 2. 3. 4. l. d.

1080 | 91666 (3 | 0368. or 39 almost

3566660

35555

333

Here in the last example, I multiplie 38 pound, 6 primes, by 28, omitting the penny not setting it out in Decimals, and the Product is 1080 | 9 primes: then multiplie 1 penny by 28, makes 28 pence, which is one prime, 166 fourths, and the total was 1080 pound, 9116 fourths, as in the example: and in this manner you may save a great labour in multiplying your number of pounds and shillings first, and then multiplie your pence by themselves, and adde into the rest in primes, seconds, &c.

2 Example.

2 Example.

If 17 ells of Holland cloth cost 3*l*. 2*s*. 5*d*. what will 515 ells cost at that rate? Divide 515 by 17, makes 30, by which multiplie 3*l*. 2*s*. 5*d*. makes 93*l*. 12*s*. 6*d*. then the remainder of your division will be 5 ells, by which 5 multiplie 3*l*. 2*s*. 5*d*, makes 15*l*. 10*s*. 1*d*, or in Decimals 15|50416 fifths; which divided by 17, makes 912 thirds; or 18*s*. 3*d*. almost; which added to 93*l*. 12*s*. 6*d*. makes the answer to be 94*l*. 10*s*. 9*d*. and so here in stead of multiplying 3|120833 sixths by 515, and dividing by 17 I have saved more than half the work.

Example.

	<i>l</i> .	<i>s</i> .	<i>d</i> .			
5						
515 (30	3	2	5	3	2	5
17	30			5		
	<hr/>					
	93	12	6	15	10	1
		18	3			
	<hr/>					
	94	10	9			

22 1.2 3.4.5
 25|50416 (94200
 27777
 2112

3 Example.

3 Example.

If 7 pound buy 100 pound weight of sugar, how many pound weight will 156 buy me at that rate? Divide 156 by 7, makes 22, 2:7, by which multiply 100, makes 2228 pound, 4:7.

4 Example.

If 356 pieces of Callicoes cost 300 pound, 15 shillings, how much will 917 pieces cost at that rate? Divide 917 by 356, makes in the Quotient 2; therefore take the price given twice, and there will remain after your division 205 by which multiplie 300|75 seconds, makes 61653|75 seconds, which divided by 356, makes 173 pound, 18 seconds, or 173 pound, 3 shillings, 8 pence to be added to the former sum 601 pound, 10 shillings, makes 774 pound, 13 shillings, 8 pence for the question.

The same Question wrought without Reduction in Decimals.

If 356 cost 300|75 seconds, what 917? Multiplie 300|75 seconds by 917, makes 275787|74 seconds; which divide by 356, makes 774|8 seconds, or 774 pound, 13 shillings, 8 pence, as before the proof.

Example.

Example.

$ \begin{array}{r} 300\overline{)75} \\ 9\overline{)17} \\ \hline 210\overline{)5} \\ 300\overline{)75} \\ 270675\overline{) } \\ \hline 275787\overline{)75} \end{array} $	$ \begin{array}{r} 27 \\ 1640 \\ 265637 \\ 275787\overline{)75} \quad (774\overline{)68} \\ 3566666 \\ 35558 \\ 333 \end{array} $
--	---

Example.

If 179 pound of Indico cost 60 pound, 13 shillings, 5 pence, what will 716 pound cost at the same rate? Divide 716 by 179, makes 4 in the quotient, and nothing will remain: wherefore I conclude, that 4 times 60^{l.} 13^{s.} 5^{d.} which is 242^{l.} 13^{s.} 8^{d.} and is the answer to the question demanded.

6 Example.

If 36 pound of Cloves cost 11 pound, 6 shillings, how many pound shall I have for 354? divide 11³ primes by 36, makes 31388 fifths; which multiply by 354, cutting off figures for the 5 fractions, makes 111 pound, 11352 fifths, or 2 shillings, 3 pence, 1 farthing, for the answer.

Fellowship

Fellowship in Decimals.

To work the Rule of Fellowship in Decimals, gather the whole number of all the monies disbursed into one sum, and then divide the money gained or lost by that sum, and multiplie that quotient so found by each several Partners stock disbursed, and the Products will be each several mans gain or loss.

1 Example.

Four Merchants made a Companie: *A.* put in 60 Pound, *B.* 80 Pound, *C.* 120 Pound, *D.* 140 Pound, and they gained 72 pound; the Question is, what part each Merchant must have of the gains? First, the Total sum of all their monies disbursed was 400 Pound, wherefore according to the Rule I divide 72 Pound adding Ciphers unto it by 400, and the quotient is one Prime, 8 seconds; by which I multiplie each several mans stock disbursed, and I find *A.* shal have 10 Pound, 16 shillings; *B.* 14 Pound 8 shillings; *C.* 21 Pound 12 shillings, and *D.* 25 Pound, 4 shillings; total is 72 pound, as in the example.

Example.

Example.

60	80	120	140
18	18	18	18
<hr/>			
480	640	960	1120
60	80	120	140
<hr/>			
10 80	14 40	21 60	25 20

		l. 1.2
2	1.2	1080
7200	(18	1440
4400		2160
		2520
		<hr/>
		7200

2 Example.

Four Merchants made a Companie, and set forth a Ship to sea, which cost them 3616 Pound, 13 shillings; *A.* must pay 1:3 of the money; *B* 1:4, *C* 1:5, *D* 1:6, the question is, what each man must pay of the said sum? Take a number wherein the like parts may be had, which in the former book of vulgar Arithmetick, I find to be 60, whereof 1:3 is 20, and 1:4 is 15, and 1:5 is 12, and 1:6 is 10, the total is but 57: wherefore
Idi:

3 farthings; C. shall have 32 Pound, 13 shillings, 9 Pence, 3 farthings, the total is 58 Pound, 16 shillings, the proof.

Example.

	<i>l.</i>	<i>1.</i>	<i>2.</i>	<i>3.</i>	<i>4.</i>	<i>5.</i>	<i>6.</i>	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
A.	15	3	9	3	5	0	2	15	7	10	2
B.	10	7	1	5	6	1	8	10	14	3	3
C.	32	6	9	0	7	9	4	32	13	9	3
Tot.	58	7	9	9	9	1	4	58	16	03	0

4 Example.

Three Captains agree together to divide a Spoil or Booty, which they had taken containing 7851 *l.* in this sort; *A.* is to have 1:2; *B.* 1:3; *C.* 1:4; the Question is, what each mans share shall be? Find a number which hath such parts in it, viz. 12, whereof 1:2 is 6, 1:3 is 4, and 1:4 is 3, which in one sum makes 13; therefore divide 7851, adding Ciphers to it by 1:3, and the Quotient will be 603 pound, 93307 fifths; which multiplie by 6, 4, and 3, and you shall find, *A.* shall have 3623 Pound, 5384 fifths; *B.* shall have 2415 pound, 69228 fifths; *C.* shall have 1811 pound, 76921 fifths: The total is 7850 pound, 99991 fifths,

fifths, which doth want but 1 fourth of 7851 pound, which in value is but 3:125 parts of 1 penny, and this example is to be wrought without the Golden Rule. Behold the Proof of the work.

Example.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
A.	3623	5	3	8
B.	2415	6	9	2
C.	1811	7	6	9
	7850	9	9	9
	9	1	7	8
	5	1	0	0
	0	0	0	0

*The same Example wrought
another way.*

After you have divided 7851 pound by 13 find in your Decimal Table what the quotient is in Coin, makes 603 Pound, 18 shillings, 5 Pence, *ob.* which multiply by 6, 4, and 3, and their Total in one sum is the answer: as before.

<i>l.</i>	<i>l.</i>	<i>d.</i>	<i>l.</i>	<i>l.</i>	<i>d.</i>
603	9	5. ob.	603	9	5. ob.
	6			4	
<hr/>			<hr/>		
3623	5	9 00	2415	65	10 00
		<i>l.</i> <i>l.</i>			<i>d.</i>
		603 9			5 ob.
		3			
<hr/>			<hr/>		
		1811 75			4 ob.

These three several products added into one sum, makes 7850*l.* 19*s.* 11*d.* wanting but one Penny in the whole sum, which is the defect of the Decimals, which cannot be exactly set out in Coin, but it will serve to answer a Question of one Million with one Penny error at the most.

5 Example.

Three men made a stock together, and they gained 244 Pound, 8 shillings: *A.* put in 315 Pound 7 months, *B.* 408 Pound 10 months, *C.* 500 Pound 3 months; now the question is, what each man must have of the gains? First, multiplie each mans stock by his time, and gather all the totals into one sum, and they make 7785; by which divide your gains, 224 Pound, 4 Primes, and the Quotient

tient will be 31393 sixths which multiply by the several Products of each mans money and time, and the total of each several Product is the sum desired for each mans part of the gain.

Example.

A.	69 22836	69	4	6	3
B.	47 08800	47	1	9	1
C.	128 08210	128	1	8	0
<hr/>		<hr/>			
	244 40046	244	8	0	0

Position in Decimals.

Three Merchants bought a parcel of Linnen cloth cost them 757 pound, 17 shillings, whereof *A.* must pay 1:4; *B.* 1:5; *C.* 1:8; what must each man pay of this sum? I take 20 for a number, wherein I can have those parts, viz. 1:4 of 20 is 5, and 1:5 of 20 is 4, and 1:8 of 20 is 2 pound, 5 Primes, or 2 one half, their total is 11 pound 5 Primes; or 11 1:2; by which I divide 757 Pound, 85 seconds, and the Quotient is 65 1 9 Primes, which I multiply by 5 for *A.* make 329 1 10 shillings; *B.* 263 Pound 12 shillings; *C.* 164 Pound 15 shillings: the total is 757 Pounds, 85 seconds.

1 Example.

1 Example.

A.	B.	C.	
l 1	l 1	l 1	l 1 2
65 9	68 9	65 9	164 75
	4	2	1:2 263 6
			339 5
329 5	263 6	164 75	757 85

2 Example.

A Ship-carpenter bought 300 timber trees of a Gentleman, and was to pay for the first 100 a sum of money unknown, for the second twice as much as for the first 100, and for the third 100 of trees he was to pay thrice as much as he paid for the first, and the whole 300 of Trees cost him 724 *li.* 12 shillings, the question is, what each hundred cost him severally? To work this question, or any other of like nature suppose a unite, or one pound for the first 100, then he must pay 2 pound for the second 100, which is twice as much, & then also he must pay 3 pound for the third 100, which is three times as much as the first: but yet 1 pound, 2 pound, and 3 *li.* makes but 6 pound, and it should be 724 *li.* 12 shillings; so that now whereas in the former

former Book I taught you to resort to the Golden Rule for the Answer, saying, If six Pound come of my Position one Pound, of what comes 724 Pound, 12 shillings? Now alwayes supposing a unite for your first number, you shall save a multiplication; and so dividing of 724 Pound, 6 Primes by 6, I find the first 100 of trees cost him 120 pounds, 15 shillings, 4 pence, and the second 100 cost him 241 pound, 10 shillings, 8 d. and the third 100 cost him 362 pound 5 shillings; the total makes 724 pound, 12 shillings; behold the work.

Example.

						<i>l.</i>	<i>s.</i>	<i>d.</i>
<i>x</i>	4	<i>l.</i>			1	120	15	4
724	6	(120	7	5:2	2	241	10	8
0000					3	362	6	0

The Proof.

724	12	0
-----	----	---

3 Example.

Four Merchants consent to build a ship, cost them 541 Pound, 16 shillings, whereof *A.* must pay a certain sum of money unknown; *B.* must pay twice as much as *A.*; *C.* must pay twice as much as *B.*; and *D.* must pay as much as all the other three, viz.

as

as *A. B. and C.* now the question is, what each man must pay of this sum? I suppose *A.* must pay 1 *l.* then *B.* must pay 2 *li.* which is twice as much as *A.* doth pay; and *C.* must pay 6 *li.* which is thrice as much as *B.* doth pay; and then *D.* must pay 9 *li.* which is as much as all the other three do pay; but their total is but 18 *li.* and it should be 541 *li.* 16 *s.* wherefore I divide 541 *li.* 8 primes. by 18, and the quotient is 30 *li.* 1 prime, or 2 *s.* for the first part. Then *B.* must pay 60 *li.* 4 *s.* *C.* 180 *li.* 12 *s.* and *D.* 270 *li.* 18 *s.* their total makes 541 *li.* 8 primes; behold the work.

Example.

	<i>l.</i>	<i>l.</i>	<i>s.</i>
541 8	(30	<i>A.</i>	30
x 8 8 8	1	<i>B.</i>	60
xx		<i>C.</i>	180
		<i>D.</i>	270
			541
			16
		The proof.	

4 Example.

A Cistern of water containing 600 gallons is filled with water, and hath 4 several Cocks

Cocks to emptie the same, whereof if they be all set open at once, the Cistern will be emptie in 24 houres: now the second Cock will avoid twice as much as the first Cock in 24 hours, and the third will avoid three times as much as the first, and the fourth Cock 5 times as much as the first; the question is, how many each Cock doth avoid in 24 houres of the said 600 gallons.

I suppose the first Cock will avoid one gallon, then the second must avoid 2, and the third 3, and the fourth Cock 5: but yet they are but 11 gallons, and they should be 600 gallons: wherefore dividing of 600 by 11, the quotient is 54 gallons, and 6:11 of a gallon for the first Cock. Behold the work in the example following.

Example.

1.1 86 Gallons.

2.2 660 (54 6:11

3.3 xxx

4.5 x

11

Gallons.

1. 54. 6

2. 109. 1

3. 163. 7

4. 272. 8

2

22 (2 The proof.

600 22

of

Of Gain and Losse in Decimals.

If a Broad Cloth 28 yards long be sold for 14 shillings a yard, and the seller doth gain 10 pound in the hundred readie monie, what cost that broad Cloth? First by Practice find the price of the 28 yards, at 14 shillings a yard, makes 19 pound 6 primes, or 19 pound 12 shillings; divide 19 pound 6 primes by 100 pound, makes 17 pound, 81818 fifths, or in Coin 17 pound 16 shillings 4 pence 3 farthings.

Example.

28	8929	l. 1. 2. 3. 4. 5.
7	x 36000000	(17 81818
19/6	x x x x x	
	x x x x	
	x x x	

Secondlie, if 28 yards cost 17 pound, 81818 fifths, what did one yard cost at that rate? Divide 17 pound, 81818 fifths by 28 yards, and the quotient will be 63636, or in Coin 12 s. 8 d. 3 q. for the price that one yard cost.

Q^a

Example.

Example.

1111
 107070 1.2.3.4.5
 171818 (63636
 288888
 2222

Thirdly, for the proof of this work, say, if one yard cost 63636 fifts, how may I sell it to gain 10 *li.* in the 100 readie monie? Take the tenth part of 63636 fifts, makes 63636 sixths; which added into one Total, makes 69999 fifts, which doth want but one fifth of 7 primes, or 14 *s.* which proves all the former works to be true.

Example.

$$\begin{array}{r} 12.3.4.5.6 \\ 63636 \\ 63636 \\ \hline 699996 \end{array}$$

2 Example.

A Merchant doth deliver monie at Interest for 9 months, after the rate of 12 pound in the hundred, for 12 months simple Interest

rest, and at the end of 9 months doth receive for interest 87 *li.* the question is, what was the sum lent? Answer: because the interest of 9 months at 12 *li.* in the hundred is 9 *li.* divide 8700000 by 9 *li.* and the quotient is 966 *li.* 6666 fourths, or 966 *li.* 13 *s.* 4 *d.* the sum lent.

Example:

$$\begin{array}{r} 666 \\ 8700000 \overline{) 9666666} \\ 999 \end{array} \quad \begin{array}{r} l. \quad 1.2 \quad 3 \quad 4 \\ (966) \quad 6 \quad 6 \quad 6 \quad 6 \end{array}$$

3. *Example:*

If 13 pieces of Canvas cost 17 *li.* 12 *s.* how may I sell them to gain 8 *li.* in the hundred? Multiply 17 *li.* 6 primes by 8, adding two ciphers, makes 19 *li.* 8 thirds, or 19 *li.* 2 *d.* almost.

The proof of the former example, If 17 *li.* 12 *s.* gain 1 *li.* 8 *s.* 2 *d.* what will 100 *li.* gain at that rate? Multiplie 1 *li.* 8 *s.* 2 *d.* or in Decimals 1 *li.* 408 thirds, by 100 makes 140 *li.* 800 thirds, which divide by 17 *li.* 6 primes, makes 8 *li.* for the rate that 100 *li.* will gain; which shews the former work to be truly wrought.

Q3

Example.

Secondlie, if 3 s. give 12 li. what will 4 s. 3 d. give? Multiplie 2125 fourths by 12, and divide by 15 seconds, and the quotient is 17 pound, the proof of the last example.

Example.

1.23.4		
2125	100	1.
12	255 00	(17
<hr/>	255	
555 00	2	

3 Example.

A Merchant sold 24 Cloths, which cost him 342 pound, wherein he lost after the rate of 10 pound in the hundred, and took in exchange 560 pieces of Raisons at 24 shillings the piece, wherein he gained 10 pound in the hundred readie monie; now the question is, what his gain or losse was, and what sum of monie he was to pay for the Raisons? First, 560 pieces of Raisons at 24 shillings a piece, is 672 pound; from which subtract 342 pound, leaves 330 pound to pay for the Raisons. Secondlie, 672 pound, at 10 pound in the hundred, is 67 pound 4 shillings for his gains by the Raisons. Thirdlie, 342 pound less, 10 in the 100, is 34 pound, 4 shillings,

4 shillings, to be deducted from 342 *li.* and then take 34 *li.* 4 *s.* from 67 *li.* 4 *s.* leaves his gains more then his losse to be 33 *li.*

Example.

<i>pieces.</i>			
560	672		
12	— — — — —		
— — — — —	67 2 gains	— — — — —	342
672 0	34 2		34 2 losse.
342	— — — — —		
— — — — —	33 0 clear gains.		
330 10 pay.			

6 Example.

A Merchant receiveth for principal and interest 352 *li.* wherein he gained 9 *li.* in the hundred for one year; now the question is, what was the sum of monie lent? Divide 35200 | 000 by 109 *li.* makes 322 *li.* 9357 fourths, or 322 *li.* 18 *s.* 8 *d.* ob. for the sum lent.

6 Example.

6 Example.

$$\begin{array}{r}
 30368 \\
 2522935 \\
 2520010000 \\
 1099999999 \\
 1000000 \\
 \text{IIII}
 \end{array}$$

7 Example.

A Merchant hath owing unto him, 540 £ to be paid at the end of three years, now he debtor will pay him ready money, if he will abate him 9 *li.* in the hundred. Divide 540 with ciphers by 109 three times one after the other, and the third Quotient will be the sum that he shall pay in ready money, abating 9 *d.* in the hundred interest upon interest. Behold the work following.

7 Example.

$$\begin{array}{r}
 5413 \\
 1049541 \\
 540001000 \quad (4954 \quad 200 \\
 109999999 \\
 1000000 \\
 \text{IIII}
 \end{array}$$

Q5

450
 5.9057
 49541 | 00 (454506
 1009999
 10000
 XIX

I
 70348
 1866174 l. 1.2.3
 45450 | 603 (416 | 974
 10099999
 100000
 XII

or 416 l. 19 s. 6 d.

The proof is made by multiplying the last Quotient by 9, and that Product again by 9, and thirdlie again by 9, makes 540 *li.* wanting but one fifth, which is but 3:1750 parts of 1 pennie, or 6:875 parts of one farthing.

8 Example.

A Merchant hath owing unto him 632 pound, to be paid at the end of 12 months, now his debtor will pay him readie monie, if he will abate him 12 pound in the hundred *per annum*. Divide 932 by 8, pound, and
the

the quotient will be the sum of monie that will discharge the debt, abating 12 li in the hundred.

Example.

$$\begin{array}{r}
 398 \\
 748264 \\
 63200 \overline{) 000} \\
 21222 \overline{) 222} \\
 \text{XIXIX} \\
 \text{IIIX}
 \end{array}
 \quad
 \begin{array}{r}
 l. \quad 1.23 \\
 (564 \overline{) 285}
 \end{array}$$

or 564 l. 5 s. 8 d. ob.

9 Example.

324 li. was received for interest monie lent a Merchant Adventurer at 17 li. in the hundred one year, what was the sum lent? Answer, divide 32400 by 17, makes 1900 li. and 1:17 of a pound.

10 Example.

If 358 ells of Holland cost 124 pound 16 shillings, how shall it be sold an ell to gain 12 pound in the hundred readie monie? First multiplie 124 pound 8 primes by 12, adding 2 ciphers, makes 139 pound 776, or in coin 139 pound 1, shillings 6 pence. Secondlie, divide

divide 139 *li.* 776 by 358, makes 3905 fourths, or 7 *s.* 9 *d.* 3 *q.* for the price to sell one ell to gain 12 *li.* in the hundred.

Example.

$$\begin{array}{r}
 \text{L. } 1.23 \\
 124 \overline{) 800} \\
 \underline{12} \\
 14 \overline{) 976} \\
 \underline{139} 776
 \end{array}$$

$$\begin{array}{r}
 \text{r r} \\
 3238 \\
 139 \overline{) 7760} \\
 \underline{3588} 88 \\
 3558 \\
 33
 \end{array}
 \quad
 \begin{array}{r}
 1.2.3.5 \\
 (3905
 \end{array}$$

II *Example.*

If one ell of cloth cost 18 *d.* how shall I sell 358 ells to gain 7 *li.* 10 *s.* by the bargain, and at what rate in the hundred do I gain? First, 358 ells at 18 *d.* an ell, makes 26 *li.* 17 *s.* to the which add 7 *li.* 10 *s.* the gaines makes 34 *li.* 7 *s.* for to sell 358 ells to gain 7 *li.* 10 *s.* by the bargain. Secondly, divide 7 *li.* 500000 sixths by 26 *l.* 85 seconds, and the quotient is 27 *li.* 9 46 fourths, or 27 *li.* 18 *s.* 8 *d.* 9 *q.* which is the rate gained by the 100 *li.* of monie.

Example.

Example.

elles.		
358	d.	
75	18	
<hr/>		
	2578	
1720	212055	l. 1.2.3.4
2526	7500000	(27 9346
<hr/>		
	2685555	
26855	26888	
75	266	
<hr/>		
	2	
34 35	price.	

12 Example.

How much Indico of 6 s. 3 d. a pound will pay for 73 broad clothes at 16 li. one cloth; and to pay 60 pound in present monie? First, 73 broad cloths at 16 li a cloth, makes 1168 li. from which subtract 60 li. there will remain 1108 li. which divide by 6 s. 3 d. or 3125 fourths, and the Quotient is 3545 li. 6:10 of one pound, and so much must he give of Indico for the clothes.

Example.

Example.

73	r.
16	r88
438	r438.7
73	r705508
1168	1108 00000 (3545 6:10
60	3r255555
1108	3r2222
	311r
	33

13 Example.

How many pounds of Cloves at 6 s. a pound, and small Cinnamon of 3 s. a pound, must be given for 36 Carseys at 4 li. 3 s. a piece, to have of each a like number of pounds? Answer, 36 Carseys at 4 li. 3 s. a piece, makes 149 li. 8 s. which divided by the price of both, viz 19 s. makes 332 pound of each sort.

The proof: 332 pound of Cloves at 6 s. a pound, makes 99 li. 12 s. then 332 pound of Cinnamon at 3 s. a pound, makes 49 pound 16 shillings, the total is 149 pound 8 shill.

8 shillings, the given price of the 36 Car-seys.

Example.

1.	1.2	
4	15	
	36	
24		140
124	90	14 1000 (332 l. of each.
	5	4888
149		42
	4	

14 *Example.*

Of what principal came 1000 pound principal and interest, at compound interest in three yeares at 6 pound in the hundred? Divide 1000 pounds three several times by 106, makes 839 pound 62 seconds, or 839 pound 12 shillings 3 pence almost, which was the sum lent at first.

Example.

$$\begin{array}{r}
 24\cancel{r} \\
 146622 \\
 100000 \overline{) 000} \quad (943 \overline{) 390000} \\
 1006666 \\
 100000 \\
 111\cancel{r}
 \end{array}$$

$$\begin{array}{r}
 9109 \\
 9556 \\
 943 \overline{) 90000} \quad (889990 \\
 106666666 \\
 100000 \\
 1111\cancel{r}
 \end{array}$$

$$\begin{array}{r}
 106\cancel{r} \\
 41134 \quad \text{L.} \quad | \\
 889990 \quad (839 \quad 6 \\
 106666 \\
 1000 \\
 11
 \end{array}$$

15 Example

If 34 Tun of Wine cost 544 li. how may
 a man sell a Tun to gain 12 li. upon the hun-
 dred readie monie? First, find the price of

one Tun dividing 544 by 34, makes 16 *li.* for the price of one Tun which it cost: then multiplie 16|00 by 12 *li.* makes 17 *li.* 92 seconds, or 17 *li.* 18 *s.* 4 *d.* 4:5 of a pennie, for the price to sell one Tun of that Wine to gain 12 *li.* upon the 100 *li.*

$$\begin{array}{r} 20 \quad \text{L.} \\ 544 \quad (16 \\ 344 \\ 20 \end{array}$$

$$\begin{array}{r} 1.2 \\ 16|00 \\ 12 \\ \hline 192 \\ \hline 17|92 \end{array}$$

How to work Gain and Losse in pence, and parts of pence or farthings.

Set out your number of pounds, shillings, pence, and farthings in pence, and in tenths of one pennie; and for one farthing set out 2 primes, 5 seconds, which is one fourth of a pennie, and for two farthings set out five primes, which is one half pennie; and for three farthings set down seven primes 75 seconds which is three quarters of one pennie, and then they are apt for decimal operations, both for multiplication, division, or any

any other work of Arithmetick, without reducing them into farthings, and there will be a great deal of labour saved in these kind of operations, as shall appear afterwards by the examples following.

I Example.

What is the interest and principal of 100 *li.* put forth at 10 pound in the hundred compound interest, for the space of 7 years, to be all received at the end of the term? First, put your 100 *li.* into pence, maketh 2400 pence; then work as in this example following, and you shall find it will amount unto 46769 pence, and 1:5 of one pennie, which is the sum that 100 pound will amount unto at interest upon interest in 7 years, at 10 *li.* in the hundred.

Example.

Example.

100 pound makes	pence.
—	24000
	2400
1 Year	26400
	26400
2 Year	29040
	29040
3 Year	319440
	319440
4 Year	3513840
	351384
5 Year	3865224
	3865224
6 Year	42517464
	42517464
7 Year	467652104

222 d.

22107

457690 (194 8

214440

222

Total 194 l. 17 s. 5 d. 155

2 Example.

2 Example.

A Merchant delivered 358 *l.* at interest for 3 years, for 8*l.* in the hundred compound interest; the question is, what it will amount unto at the end of the term? Put your money into pence, makes 85920 *d.* which multiply by 8, adding 2 ciphers, and work for 3 years, as in the example following.

Example.

$$\begin{array}{r}
 \text{358 pound is } \text{---} 85920 \overset{d.}{\underset{8}{|}} 00 \\
 \hline
 \text{1 Year } \text{---} 6873 \overset{d.}{\underset{8}{|}} 60 \\
 \hline
 \text{1 Year } \text{---} 92793 \overset{d.}{\underset{8}{|}} 600 \\
 \text{0000} \overset{d.}{\underset{8}{|}} 008 \\
 \hline
 \text{2 Year } \text{---} 7423 \overset{d.}{\underset{8}{|}} 488 \\
 \hline
 \text{2 Year } \text{---} 100217 \overset{d.}{\underset{8}{|}} 08800 \\
 \text{00000} \overset{d.}{\underset{8}{|}} 00008 \\
 \hline
 \text{3 Year } \text{---} 8017 \overset{d.}{\underset{8}{|}} 36704 \\
 \hline
 \text{3 Year } \text{---} 10823 \overset{d.}{\underset{8}{|}} 45504 \text{ d.} \\
 \hline
 \text{12 18 d. l. } | \\
 1082340 \text{ (450} \overset{d.}{\underset{8}{|}} 9 \text{ or 450} \overset{d.}{\underset{8}{|}} 1. 19 \text{ s. 6 d.} \\
 244440 \\
 222
 \end{array}$$

The proof of the former Example in Decimals

A certain Merchant received for principal and interest upon interest 450 *li.* 19 *s.* 6 *d.* which was for monie lent at 8 *li.* in the 100 for 3 yeares; now the question is, what was the sum lent? Place 450 *li.* 19 *s.* 6 *d.* in Decimals, and you will find your third quotient will be 358 *li.* wanting some few seconds, which proves the work good.

3 Example.

A Merchant lent 112 *li.* for 6 months at 17 *li.* in the hundred for 12 months, the question is, what he shall receive? Put your monie into pence, makes 2688 pence; mark out your prime line, as in the former examples, and add 2 Ciphers, then multiplie by 17, and take half that product for 6 months interest, and add unto the principal, and the total is the sum of pence which he shall receive for principal and interest at 6 months end.

Example.

Example.

112 pound is—26880|00
 0000|17

2688|6

1881|0

4569|6 totall.

2284|8 one half added.

29164|8 the sum sought.

Makes 121 $\frac{1}{2}$. 10 s. 4 d. 4:5 of a d.

4 Example.

If a pound of Cinnamon cost 4 s. readie monie, how may it be sold to gain 12 $\frac{1}{2}$ in the hundred to give 6 months time? Set your 4 s. in pence, makes 48 d. then add 2 ciphers, and multiplie by half the interest, and add them into one sum, and the Product will be 50 d. 88 seconds, or 4 s. 2 d. 2:25 of one pennie for the price to sell one pound to gain 12 $\frac{1}{2}$ in the hundred for 6 months time.

5 Example.

5 Example.

$$\begin{array}{r}
 d. 1.2 \\
 48 \overline{) 00} \\
 \underline{ 6} \\
 2 \overline{) 88} \\
 \underline{ 88} \\
 50 \overline{) 88}
 \end{array}$$

Makes 50 pence, 9:10 of a pennie almost.

6. Example.

If 112 pound weight of Cloves cost 33 *li.* 12*s.* how may I sell them to gain 14 *li.* in the hundred, and give 4 months time? First set down 33 *li.* 6 primes, then add 2 ciphers, and multiplie by 14, makes 4 *li.* 704 thirds, of which take the third part, because 4 months is the third part of one year, which is 1 *li.* 568 thirds: which added into one total, makes 35 *li.* 3*s.* 4*d.* 6*b.* for the price to sell 112 pound to give 4 months time, and to gain 14 pound in the hundred in twelve months.

5 Example.

5 Example.

$$\begin{array}{r}
 33 \overline{) 600} \\
 \underline{14} \\
 1 \overline{) 344} \\
 \underline{3} \quad 36 \\
 4 \overline{) 704} \\
 \underline{1} \quad 568 \\
 35 \overline{) 168}
 \end{array}$$

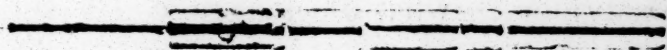
6. Example.

If in 112 pound weight of Sugar, sold for 7 li. 12 s. ready monie, there were gained 11 li. in the hundred, what did one pound cost at first pennie? First, divide 7 li. 6000006 by 111 li. which is the principal and interest given, and the quotient is 6 li. 84684 fifts, which 112 li. cost readie monie. Secondlie, divide that quotient by 112 l. makes 61132 sixths, or 14 d. 3 q. for the price that one pound cost at first pennie.

7 Example.

7 Example.

If 300 pieces of Lawn cost 321 *li.* 4 *s.* how may I sell them to lose 15 *li.* in the 100? First, take the rate what one cost, by dividing 321 *li.* 2 primes by 300, makes 1 *li.* 0706666 sevenths, or 1 *li.* 1 *s.* 5 *d.* almost, for the price that one piece cost. Secondly, take the interest of 1|0706666 seventh, at 15 *li.* in the 100 and subtract it, and then it makes 91000 sixths, or 18 *s.* 2 *d.* 2:5 of a pennie, for the price to sell one piece to lose 15 *li.* in the hundred readie monie. Thirdly, for the proof of this work, say; If one piece cost 910067 sixths; what will 300 pieces cost at that rate? Multiplie 910067 sixths by 300, and cut off 6 figures to the right hand, makes 273 *li.* 5 *d.* almost, for the sum received for 300 pieces to lose 15 *li.* in the 100.



R

Example.

Example.

$$\begin{array}{r}
 22222 \text{ l. } 1.2.3.4.5.6 \\
 321 \overline{) 20000000} (1 \mid 706666 \\
 3333333300 \\
 \hline
 107666600 \quad 1.2.3.4.5.6 \\
 \quad 15 \quad 910067 \\
 \hline
 160599 \quad 300 \\
 \hline
 910067 \quad 273 \overline{) 020.00} \\
 \hline
 321 \overline{) 1.2.3} \\
 \quad 200 \\
 \quad 15 \\
 \hline
 48 \overline{) 18} \\
 \hline
 273 \overline{) 02} \quad \text{The Proof.}
 \end{array}$$

8 Example.

If in one ell of cloth sold for 3 s. 2 d. ob. there were gained 10 li. in the hundred ready money; what did that ell cost? Answer, set 3 s. 2 d. ob. in Decimals, makes 38 pence 5 primes; then divide 38 pence 5000 fourths by 100 li. makes 35 pence, the price that one ell cost.

Example.

Example.

$$\begin{array}{r} 9 \\ 38 \overline{) 1500} \quad (35 \text{ d. the price one cost.} \\ 1100 \\ \hline 400 \end{array}$$

9 Example.

If in one ell of cloth sold for 35 d. 19 seconds, there were gained 7 li in the hundred ready monie, what did that ell cost, when there was 6 months time given? Divide 35 l. 1900 fourths, by half the interest, adding 100, which is 103 d. 5 primes, and the quotient is 34 d. the price that the ell cost.

$$\begin{array}{r} 474 \quad \text{d.} \\ 35 \overline{) 1000} \quad (34 \\ 10358 \\ \hline 103 \end{array}$$

10 Example.

A Merchant lent monie at 10 pound in the hundred for 100 pound profit for twelve months, and at the end of six months he received principal and interest 356 pound, the question is, what was the sum lent? Divide 356 pound by 105 pound, which is the half

R 2

years

354 *Decimal Arithmetick.*

years interest and principal, and the quotient is 305 *li.* 5:205 of a *li.* for the sum lent

Example.

4155	l.
55600	(339 5:105 of a <i>li.</i>)
20555	
203	
2	

II Example.

If 17 *li.* lose 12 *s.* what will 100 *li.* lose?
Divide 60000 fifts by 17, makes 3 *li.* 529 thirds, or 3 *li.* 10 *s.* 7 *d.* in the 100 *li.*

12 Example.

If 37 yards of Velvet cost 32 *li.* how must one yard be sold to gain 9 *li.* 10 *s.* in the 100? First, 32 *li.* the price at 9 *li.* 5 primes the hundred, makes 35 *li.* 4 seconds; which divide by 37, makes the price of one yard to be 9:702 fifts, or 18 *s.* 11 *d.* 06. to sell one yard to gain 9 *li.* 10 *s.* in the 100.

Example.

Example.

$$\begin{array}{r}
 1. \quad 1.2.3 \\
 32000 \\
 | \quad 95 \\
 \hline
 | \quad 160 \\
 288 \\
 \hline
 35040
 \end{array}$$

$$\begin{array}{r}
 2 \\
 176x \quad 1.2.3.4 \\
 350400 \quad (9470 \\
 3777 \\
 32
 \end{array}$$

or 18 s. 11 d. ob.

Exchange in Decimals.

1 Example.

If 1 li. sterling be 1 li. 14 s. 6 d. Flemish? what is 783 li. sterling in Flemish monie? Set out 1 li. 14 s. 6 d. in Decimals, makes 1 li. 725 thirds; which multiply by 783 li. makes 1350 li. 675 thirds, or 1350 li. 13 s. 6 d.

R 3

Example.

Example.

$ \begin{array}{r} 1 \overline{) 1.2.3} \\ 1 \overline{) 7.2.5} \\ \hline 7.8.3 \\ 5 \overline{) 7.5} \\ 138 \overline{) 0.0} \\ 1207.5 \\ \hline 1350.677 \end{array} $	$ \begin{array}{r} 1.2.3 \\ 275 \\ 783 \\ \hline 825 \\ 2200 \\ 1925 \\ \hline 215325 \end{array} $
--	---

$$\begin{array}{r}
 1 \overline{) 1.2.3} \\
 215 \overline{) 3.2.5} \\
 \hline
 1350 \overline{) 6.7.5} \\
 1566 \overline{) 0.0.0} \quad \text{The Proof.}
 \end{array}$$

4 Example.

If 1 *li.* exchange be 5 *s.* 6 *d.* what is 783 *l.*
 Set 5 *s.* 6 *d.* in Decimals, makes 275 thirds;
 which multiplie by 783, makes 215 *li.* 325
 thirds, or 215 *li.* 6 *s.* 6 *d.* which added to
 the last example, is 1566 *li.* and so much is
 the double of the sum given, *viz.* of 783 *li.*
 because the 2 prices given makes just 2 *li.*
 and this by working a second question in ex-
 change, the first is proved to be truly wrought
 as appeareth in the example above.

3 Example.

If one *li.* exchange be one *li.* 17 *s.* 7 *d. ob.*
 what is 1000 *li.* at that rate? Set 1 *li.* 17 *s.*
 7 *d. ob.* in Decimals, makes 1 *li.* 88125 fifths;
 then

then because 1000 hath 3 ciphers, add 3 ciphers, and cut off five figures, and the answer is 1881 *li.* 5 *s.*

$$\begin{array}{r|l} 1.2 & \\ 1881 & 25000 \end{array}$$

4 Example.

A Merchant doth receive 134 *li.* 6 *s.* for the exchange of 100 *li.* sterling from *Middleborough*, what was 1 *li.* sterling in *Flemish* monie? Place 134 *li.* 6 *s.* in Decimals, is 134 *li.* 3 primes; then because 100 *li.* hath 2 ciphers, cut off two figures more to the left hand, and it will be 1 *li.* 343 thirds; or in Coin, 1 *li.* 6 *s.* 11 *d.* 9. for the exchange of 1 *li.* at that rate.

l.	1.2.3	li.	s.	d.	q.
1	348	or 1	6	11	1

5 Example.

A Merchant doth receive 645 *li.* 12 *s.* for exchange monie, at 1 *li.* 7 *s.* 6 *d.* for 1 *li.* sterling, the question is, how much sterling monie he did deliver? Divide 645 *li.* 6 primes, by 1 *li.* 375 thirds, or 1 *li.* 7 *s.* 6 *d.* makes 469 5268 fourths, or 469 *li.* 10 *s.* 6 *d.* 9. for the sterling monie delivered.

R 4

6 Example

6 Example.

If 1 *li.* Sterling be 1 *li.* 7 *s.* 6 *d.* Flemish, what is 100 *l.* Flemish in Sterling Coin? Divide 100 *li.* by 1 *li.* 375 thirds, makes 72 *l.* 727 7 fifths, or 72 *li.* 14 *s.* 6 *d.* ob. that 100 *l.* makes.

7 Example.

If the exchange be from *Rome* to *London* at 69 *d.* sterling 1 Duckat, how many Duckats shall be delivered at *Rome* for to receive 356 *li.* 16 *s.* sterling at *London*? Answer: Divide 356 *li.* 8 primes by 2875 fourths, which is 69 pence, and the quotient will be 1241 Duckats 3 *d.*

$$\begin{array}{r}
 37 \\
 11802 \\
 693035 \\
 356 \overline{) 8000} \\
 2875555 \\
 28707 \\
 288 \\
 2
 \end{array}$$

1241 Duckats and
there remains 3 *d.*

8 Example.

If the exchange be from *London* unto *Amsterp* at 23 *s.* 5 *d.* 3 *q.* Flemish the *li.* sterling, how much monie must be delivered at *London*, to receive 146 *l.* 14 *s.* 10 *d.* 3 *q.* in Flemish

Flemish monie ? Answer: Divide 146 *li.* 744775 sixths, by 1 *li.* 3 *s.* 5 *d.* 3 *q.* which is 1 *li.* 1739582 sevenths, and the quotient is 125 *li.* and so much must he deliver at *London*, to receive 146 *li.* 14 *s.* 10 *d.* 3 *q.* in Flemish coin at that rate.

Example.

$$\begin{array}{r}
 586979 \\
 29748581 \\
 \hline
 14617447780 \quad \text{l.} \\
 1173958222 \quad (125 \\
 11739588 \\
 \hline
 117393
 \end{array}$$

9 Example.

A Merchant doth deliver at *Antwerp* 200 *li.* Flemish by exchange for *London*, at 22 *s.* 10 *d.* Flemish for 1 *li.* sterling; how much must he receive at *London*? Answer: Divide 200 *li.* by 1 *li.* 141666 sixths, which is 22 *s.* 10 *d.* makes 175 *li.*

A general Rule for exchange in Decimals.

If the price of a unite be given, then alwayes divide the sum of monie whereon the question dependeth by that unite in Decimals, and the quotient is the answer to the question.

R 5

1 Example

3

1 Example.

A Merchant doth deliver 100 *li.* sterling by exchange for *Rome*, at 72 *d.* sterling for 1 Duckat *De Camera*; the question is, how many Duckats he must receive at *Rome* for his 100 *li.* sterling? Here the price of 1 Duckat is given to be 72 *d.* which is 6 *s.* or 3 primes; wherefore I divide 100 *li.* by 3 primes, and the quotient is 333 *li.* 1:3 of a *li.* or 6 *s.* 8 *d.* for answer to the question

2 Example.

A Merchant doth deliver 756 *li.* sterling at *London* to receive Duckats at 66 *d.* sterling, the price of one Duckat; the question is, how many Duckats he must receive at *Venice*? Divide 756 *li.* by 66 *d.* which is 275 thirds, and the quotient is 2748 Duckats, and 300:2750 of 1 Duckat for the Answer.

3 Example,

A Merchant at *Venice* doth deliver 1000 Duckats, to receive at *London* 287 *li.* 10 *s.* sterling, what is one Duckat? Set down 287 *li.* 5 primes, and divide by 1000 Duckats, makes at 5 *s.* 9 *d.* for one Duckat.

$$\begin{array}{r}
 1.2.3.4 \\
 287 \overline{) 3000} \quad (2875 \\
 \underline{2000} \\
 1000 \\
 \underline{800} \\
 200 \\
 \underline{100} \\
 100 \\
 \underline{100} \\
 0
 \end{array}$$

Makes 5 *s.* 9 *d.* one Duckat

4 Example.

4 Example.

A Merchant at *Venice* doth deliver 800 Duckats by exchange for *London*, at 64 *d. ob.* the Duckat sterling monie, the question is, how much sterling he must receive at *London*? Set out 64 *d. ob.* in Decimals, makes 26875 fifts; which multiplie by 800, and cut off 5 figures, because your fractions are 5, and the Product will be 215 *li* sterling.

$$\begin{array}{r} 1\ 2\ 3\ 4\ 5 \\ 26\ 8\ 7\ 5 \\ \hline 800 \end{array}$$

$$215\ 00000$$

Makes 215 pound sterling.

5 Example.

A Merchant doth deliver 1000 Duckats by exchange for *London*, at 71 *d.* sterling for 1 Duckat, how much must he receive sterling monie at *London*? Set out 71 *d.* in Decimals, makes 2958 fourths, 1:3, and add 3 ciphers for 1000, and cut off 4 figures, makes 295 *li.* 8 primes, 1:3, or 295 *li.* 16 *s.* 8 *d.* for the Answer.

$$\begin{array}{r} 1. \quad | \\ 295\ 8000 \end{array} \text{ makes } 295\ \text{l. } 8\ \text{primes, } 1:3.$$

6 Example.

6 Example.

One pennie Flemish is 3:5 of one pennie sterling, and 1 *li.* Flemish is 3:5 of 1 *li.* sterling, or 12 *s.* wherefore to convert Flemish monie into sterling Coin, multiplie your Flemish monie by 3:5, which in Decimals is 6:10, or 6, and the Product will be the value of your Flemish monie in sterling Coin. In 345 Flemish, how much sterling Coin? Multiplie 345 by 6 primes, and the Product is 207 *li.* sterling.

$$\begin{array}{r}
 \text{In } \overset{\text{li.}}{345} \mid \overset{|}{6} \\
 \hline
 207 \mid 0
 \end{array}
 \qquad
 \begin{array}{r}
 \text{In } \overset{\text{li.}}{7156} \mid \overset{|}{6} \\
 \hline
 4714 \mid 08 \quad 5
 \end{array}$$

7 Example.

In 756 *li.* 18 *s.* sterling, how much Flemish coin, when 1 penny Flemish is 3:5 of a penny English? Divide 756 *li.* 9 primes, by 6 primes, makes 1261 *li.* 5 primes, or 10 *s.*

$$\begin{array}{r}
 \overset{\text{li.}}{1261} \mid \overset{|}{5} \\
 756 \mid 00 \quad (1261 \quad 5 \\
 616 \quad 66
 \end{array}$$

Reduction

Reduction of Measures from one place to another.

If you will reduce the measure of one Country into the measures of another; as if you would reduce the measures of *Antwerp*, *Gaunt*, *Brudges*, *Sivill*, *Roven*, or of any other Country into the measures at *London*; learn first the order of measuring of all sorts of commodities in both places, either out of the experience of Merchants and Tradesmen in these places, or out of the best and latest approved Authors that have written Tables to that effect, and note that 4 ells at *London* makes 5 yards, and 100 ells at *London* is at

Ells.

<i>Antwerp</i>	166.2.3
<i>Gaunt short measure</i>	164
<i>Gaunt long measure</i>	154
<i>Brudges</i>	164
<i>Arras</i>	165
<i>Calice</i>	157
<i>Lisse</i>	166
<i>Mastricht</i>	173
<i>Cullen</i>	208
<i>Frank-fort</i>	208
<i>Noremberg</i>	174
<i>Dantringo</i>	139
<i>Roven</i>	103
<i>Paris</i>	95
<i>Lions</i>	100

Genne

364 *Decimal Arithmetick.*

<i>Genna</i>	—————	480.2:3	Palmes
<i>Millain</i>	—————	214	Braces
<i>Florence</i>	—————	188	Braces.
<i>Venice</i>	{	for Silk hath	196 Ells.
		for Linnen hath	180 Ells.
<i>Rome</i>	—————	56	Canas.
<i>Lisborne</i>	—————	100	Varras.
<i>Madera</i>	—————	104	Varras.
<i>Sivill</i>	—————	135	Varras.

These I have taken out of Masterfons Arithmetick.

The difference of 1 hundred ells, Palmes, Varras, or Braces, being found of any place from *London*; if you would convert the measures of any of those places to *London* measure: as for example, if you would convert 356 ells of *Brudges* measure into ells, at *London*, you shall find in the Table, that 164 ells makes 100 at *London*; then by the Rule of Three say,

1 Example.

If 164 be 100, what are 356 ells? Multiplie 356 by 100; and divide 164 by makes 217 ells, 12:164 of an ell, which 356 at *Brudges* will make in *London*. But according to the order of Decimals, if you will bring the measures of other places to those of *London*, set your number of one hundred, found in the Table, to a unite in Decimals; as in the last example

example 164 stands thus 1|64 seconds; then you need but divide your number 356 by 1 ell, 64 second, and the quotient is 217 ells, 12:164 ells, as in the last example.

Again, if you would reduce *London* measure to the measures of any other place; find the number of 100 to that place, and set it in Decimals, and multiplie your number of ells at *London* by those numbers found, and the Product will be your desire.

2 Example.

In 758 ells at *London* how many ells at *Dantz*? I find in the Table 139 ells there, make 100 at *London*; so I set 139 to a unite, and it is 1 ell 39 seconds; by which I multiplie 758, makes 1053 ells, 62:100 part.

2 Example.

1 Example.

xxx 2862 Ells 35600 217 x6444 160 x 1	758 00 1 39 <hr/> 68 22 227 4 758 <hr/> 1053 62
---	--

3 Example.

3. Example.

If 166 ells 2:3 at *Antwerp* be 100 ells at *London*, how many ells at *London* are 1756 ells at *Antwerp*? Set 166, 2:3 to a unite, makes 1 ell, 66 seconds, and 2:3 of a second: Or otherwise, 1 ell, and 2:3 of 1 ell, by which divide 1756, makes 1053 2:2.

5070	
894702	Ell
1756000000	1053 1:2 almost.
16666666	
166666	
1666	
16	

4 Example.

In 3258 ells at *London*, how many Braces at *Milain*? Find 214 for 100 at *London*, so that if you set 214 to a unite, it will be 2 Braces, 14 seconds, by which multiply 3258, makes 6982 Braces, and 12:100 part of a Brace.

And in this manner you may easily convert your Measures or Waights from one place to another, either by multiplication or division, without

without the Golden Rule. But of this, if it please God to lend me life and health, I do purpose to speak in a Treatise at large of Decimal Arithmetick, for the good of my Country men and others, if I find these my labours and indeavours to be acceptable and beneficial to others; and will better inform my self by Merchants, who have had experience in the Reduction of Waights and Measures from place to place: In the mean time, here is a foundation laid to work upon, let the difference be what it will: And so for this time I will end this Treatise of Decimal Arithmetick, and go in hand with some operations of Annuities, as followeth.

Of

Of Interest and Annuities.

How to frame Tables to work Interest and Annuities, or Purchaser at any rate.

FOR as much as these kind of operations of Interest and Annuities, are very tedious and troublesome, if they be to be wrought for many years, although I have already in the former Book set forth many several manners of working those kind of questions, after a more easie kind of method, than heretofore hath been published by any other in the like kind whatsoever, yet here I have thought good also in this place, to shew the wayes, whereby any man that is desirous to be satisfied in the reasons or grounds of those kind of works, may be able to calculate for his own use a Table or Tables, whereby to abbreviate those kind of operations, by Multiplication, or Division onely, without the help of the Golden Rule, or any tedious Reductions of Multiplications and Divisions, for many years to come, at one onely operation; as shall appear by the examples following.

How

How to calculate the Table or Breviate of 10 pound in the hundred Compound Interest.

If you will calculate a Table for 10 pound in the hundred compound Interest for 21 or 30 years; Place your numbers as in the examples following, beginning with a unite, or 1, adding 7 ciphers unto it, and then take the tenth part of that, which is the same numbers one room more to the right hand, and add them into the first numbers, and the total will be the sum for the first year; and so you must work for the second, third, fourth, &c. until 21 or 30 years: But here you shall note, that you shall need to set down in your breviate more than 8, 9, or 10 numbers at the most, for because the rest will be superfluous; as for example.

Example.

Example.

Inter	1.2.3.4.5.6.7.8	Years	Inter	1.2.3.4.5.6.7.8	Years
1	00000000 1	0	2	35794769 23579476	9
1	10000000 11	1	2	59374246 25937424	10
1	21000000 121	2	2	85311670 28531167	11
1	33100000 1331	3	3	13842837 31384283	12
1	46410000 14641	4	3	45227121 34522712	13
1	61051000 161051	5	3	79749833 37974983	14
1	77156100 1771561	6	4	17724816 41772481	15
1	94871710 19487171	7	4	59497298 45949729	16
2	1458881 21435883	8	5	05447028 50544702	17
2	35794769	9	5	55991731 55599173	18
		6		11590904	19

Here

Here you may see in this Table the manner of gathering the Breviate of 10 pound in the hundred compound Interest, which you may extend to what number of years you please, onely adding a unite in the eight place, as you see the figures in the ninth place do arise; and now I will here set down the Breviate from one year unto forty ready gathered.

The

The Breviate of 10 pound in the hundred per annum, Compound Interest for 40 yeares.

year.	1	2	3	4	5	6	7	8	years	1	2	3	4	5	6	7	8	9
1	1	1	0	0	0	0	0	0	21	7	4	0	0	2	4	9	9	0
2	1	2	1	0	0	0	0	0	22	8	1	4	0	2	7	4	9	0
3	1	3	3	1	0	0	0	0	23	8	9	5	4	3	0	2	4	0
4	1	4	6	4	1	0	0	0	24	9	8	4	9	7	3	2	6	0
5	1	6	1	0	5	1	0	0	25	1	0	8	3	4	7	0	5	9
6	1	7	7	1	5	6	1	0	26	1	1	9	1	8	1	7	6	5
7	1	9	4	8	7	1	7	1	27	1	3	1	0	9	9	9	4	1
8	2	1	4	3	5	8	8	8	28	1	4	4	2	0	9	9	3	6
9	2	3	5	7	9	4	7	6	29	1	5	8	6	3	0	9	2	9
10	2	5	9	3	7	4	2	4	30	1	7	4	4	9	4	0	2	2
11	2	8	5	3	1	1	6	7	31	1	9	1	9	4	3	4	2	4
12	3	1	3	8	4	2	8	3	32	2	1	1	1	3	7	7	6	6
13	3	4	5	2	2	7	1	2	33	2	3	2	2	5	1	5	4	3
14	3	5	9	7	4	9	8	3	34	2	5	5	4	7	6	6	9	7
15	4	1	7	7	2	4	8	1	35	2	8	1	0	2	4	3	6	7
16	4	5	9	4	9	7	2	9	36	3	0	9	1	2	6	8	0	3
17	5	0	5	4	4	7	0	2	37	2	4	0	0	3	9	4	8	4
18	5	5	5	9	9	7	3	3	38	3	7	4	0	4	3	4	3	2
19	6	1	1	5	9	0	9	0	39	4	1	1	4	4	7	7	7	5
20	6	7	2	7	4	9	9	9	40	4	5	2	5	9	2	5	5	3

How

1. *How to calculate a Table or Breviate at any rate under or above 10 pound in the hundred compound Interest.*

If you would calculate a Table or Breviate at any rate under or above 10 pound in the hundred compound Interest, place a unite with 7 Ciphers to it; then if you will calculate for 12 pound in the hundred, or 16 pound; set your 12 or 16 under the 2 first ciphers, next the unite, and multiplie your unite, omitting the ciphers by your interest, and add the product into one Total, and the sum is the principal and interest for the first year, and so work again for the second, third, &c. to finish your Table, as aforesaid, at 10 pound in the hundred. But if your interest be under 10 pound in the hundred, place your number of the interest under the second cipher from your unite, and work as is in the example following.

Example.

Example.

Inter	1.2.3.4.5.6.7.8	Years	Inter	1.2.3.4.5.6.7.8	Years
I	00000000 80	I	I	36048896 8	4
I	08000000 8	I	I	10883904	
	864	I	I	46932800 8	5
I	16640000 8		I	11754624	
	93312	I	I	5868743 8	6
I	25971200 8	I	I	7138242	7
	10077690				
I	36048896 5				

In this manner you may proceed infinitely.
And thus much shall suffice for making of
these Breviates.

The

Interest and Annuities.

A Breviate of 8 pound in the hundred per annum, Compound interest for 30 years.

years	1	2	3	4	5	6	7	8	years	1	2	3	4	5	6	7	8
1	1	0	8	0	0	0	0	0	16	3	4	3	5	9	4	2	6
2	1	1	6	6	4	0	0	0	17	3	7	0	0	0	8	0	
3	1	2	5	9	7	1	2	0	18	3	9	9	6	1	1	9	4
4	1	3	6	0	4	8	8	9	19	4	3	5	7	0	1	0	
5	1	4	6	9	3	2	8	0	20	4	6	6	0	9	5	7	1
6	1	5	8	5	8	7	4		21	5	0	3	8	3	7		
7	1	7	1	3	2	4	2		22	5	4	3	6	5	4	0	4
8	1	8	5	0	9	3	0	2	23	5	7	1	4	6	3	6	
9	1	9	9	9	0	0	4	6	24	6	3	4	1	8	0	7	
10	2	1	5	8	9	2	9		25	6	4	8	4	7	5	1	
11	2	3	3	1	6	3	8	9	26	7	3	9	6	3	5	3	2
12	2	5	1	8	1	7	0	1	27	7	9	8	0	6	1	4	
13	2	7	1	9	6	2	3	7	28	8	6	7	1	0	6	3	
14	2	9	3	7	1	9	3	6	29	9	3	1	7	2	4	8	
15	3	1	7	2	1	6	9	1	30	1	0	0	6	2	6	5	0

The use of these Breviates and Tables, and of all others of like nature in working of questions of Interest and Annuities.

I. Rule.

To find what will be the amount of one pound forborn for any number of years by compound Interest after any rate per cent. so that you have a Breviate for the rate proposed

fed. Enter the Breviat for the rate proposed, and find in the left Margine, &c. the number of years, and from that number so found, cut off 7 Figures, the answer is in pounds, primes, seconds, thirds, fourths, &c. for the answer to the question demanded.

1 Example.

What is one pound put forth at interest compound, at ten pound in the hundred worth, to be paid at the end of 18 years? Find the eighteenth number in the Breviate, which is 5 | 5599173; from which cut off seven figures to the right hand, and the answer is 5 pounds, 11 shillings, 2 pence, 9.

Example.

1. 1.2.3.4.5.6.7

5 | 5 5 9 9 1 7 3 Makes 5 l. 11 s. 2 d. 9.

2 Example.

What is 100 pounds due at seven years end worth to be paid at the end of the term, at 10 in the hundred compound interest? Find the seventh number in the Table of ten pound in the hundred, makes 19487171; to the which add two cyphers, because 100 l. hath two cyphers, and cut off seven figures to the right hand, and the summe is 194 pounds, 87171 fifths for the answer.

1. 1.2.3.4.5

194 | 8 7 1 7 1 0 0, or 94 l. 17 s. 5 d. almost

3 Ex-

3 Example.

What will 758 *l.* for 6 years make at 10 *l.* in the hundred compound interest, to be paid at the end of the term? Find the sixth number in the Table of 10 *l.* in the 100, which is 17715610; which multiply by 758, the money named in the question, and the Product, cutting off 7 figures to the right hand, makes 1342 *l.* 16 *s.* 10 *d.* ob. almost.

$$\begin{array}{r}
 1.2.3.4.5.6.7 \\
 17715610 \\
 \times 758 \\
 \hline
 141724880 \\
 88578050 \\
 124009270 \\
 \hline
 134218432380
 \end{array}$$

2 Rule.

How to find what any yearly annuity will make to be paid all at the end of the term: First find the number of years of the annuity given, and from the number answering deduct a unite in the first place to the left hand and add a cypher to the last figure to the right hand, and cut off 7 figures to the right hand, and the answer is found.

1 Example.

What will 1 pound annuity make, to be paid for at the end of the term of 16 years,

S 2

at 10

at 10 pound in the hundred compound interest? Find the sixteenth number in the Table of 10 pound in the 100, and subtract a unite from the first figure to the left hand, adding a cypher to the right hand, makes 359497290; from the which cut off 7 figures to the right hand, makes 35 pounds, 18 shillings 11 pence 3 farthings.

l. 1.2.3.4.5.6

359497290

2 Example.

What will 1000 pounds annuity yearly amount unto, to be all forborn until the end of the term of 5 years at 10 pound in the hundred compound interest? Find the fifth number in the Table of 10 pound in the hundred, and subtract a unite from the first figure, adding a cypher in the last place, makes 6105100; then because 1000 *l.* hath 3 cyphers, add 3 cyphers, and cut off 7 figures, makes 6105 *l.* 2 *s.* for the answer.

l. 1.2.3.4.5.6.7

6105 | 1000000

3 Example.

What will 142 pound annuity make, to be paid at the end of the term of ten years? Find the tenth number in the Breviate of 10 pound in the hundred, and subtract a unite in the first place, adding a cypher to the last, makes

makes 159374240; which multiply by 142 pound, the annuity named, and from the product cut off 7 figures to the right hand, the answer to the question is 2263 pounds, 2 shillings, 2 pence, 3 farthings.

$$\begin{array}{r}
 \text{L. } 1.2.3.4.5.6.7 \\
 159374240 \\
 \quad \quad \quad 142 \\
 \hline
 318748480 \\
 637496960 \\
 159374240 \\
 \hline
 2263|1142080
 \end{array}$$

3 Rule.

How to find what any sum of money due at the end of any number of years is worth in ready money at ten pound in the hundred compound interest. Enter the Table of 10 pound in the hundred with your number of years, and the number which doth answer in the Table, is your Divisor; then add 7 Cyphers to your sum of money given, to make your Dividend; then divide your Dividend by your Divisor, and the quotient, adding more cyphers, will be your answer in pounds, primes, seconds, thirds, &c.

1 Example.

What is 1000 pound due at 7 years end, worth in ready money, at ten pound in the

£ 3

100

100 compound interest? Find the seventh number in the table of 10 l. in the 100, which is 19487171. This is your Divisor. Then add 7 cyphers to 1000 l. makes 10000000000; or add more cyphers, marking out your prime line in your dividend, to find out how many figures your Quotient will have in whole numbers: and the rest will be primes, seconds and thirds; this is your Dividend, and then divide by your Divisor, makes 513 pounds, 3 shillings 2 pence.

2582.

XP3250

308,25F

X.5427703

26641459798 1. 1.2.3

xoxoxoxoxoxo|000 (5131158

2048727112222

1948777777

264871XPR

19487xx

19487

Having found what 1000 *l.* due at 7 years end is worth in ready money; if you will find what 100 *l.* or 10 *l.* or 1 *l.* is worth in ready money; place your quotient in Decimals, and mark out your prime lines, cutting off one figure for 100 *l.* two for 10 *l.* or three for 1 *l.* the answer is as followeth.

Example.

Example.

For 100 l.	For 10 l.	For 1 l.
l. 1.2.3.4	l. 1.2.3.4.5	l. 1.2.3.4.5.6
5 1/3 15 8	5 1/3 15 8	5 1/3 15 8
51 l. 6 s. 3 d 3 q	51 l. 2 s. 7 d. 2 q.	10 s. 3 d. 1 q

2 Example.

What is 750 l. due at 5 years end worth in ready money at 10 l. in the hundred compound interest? Find the fifth number in the Table of 10 pound in the hundred, which is 16105100 for Divisor; then place 10 Cyphers before your number given 750 pound, and mark out your prime line, and divide by your Divisor, and the quotient will be 465 l. 13 s. 10 d. for the answer to the question given.

Example.

L
 146
 XXX259
 8165848
 8057964541
 750000000000 (465) 16 9 1
 161051111111
 161055555
 1160511
 16105
 161

L.

Makes 465 pounds, 13 shillings 10 pence.

S 4

3 Example

5 Example.

What is 847 pounds due at 21 years end, worth in ready money, at 10 pounds in the hundred compound interest? Find the 21 number in the Table of 10 pounds in the hundred for Divisor, which is 74002490; then set 10 cyphers to your numbers given, makes 847000000000 for your Dividend; then divide, and the quotient will be 144 l. 9 s. 1 d. 1:5 of 1 d the answer.

Example.

$$\begin{array}{r}
 4139 \\
 411418 \\
 33719119 \\
 3297252144 \\
 206975011448 \\
 84700000000000 \\
 7400249999999 \\
 74002499999 \\
 740024444 \\
 7400222 \\
 7000 \\
 740
 \end{array}
 \begin{array}{l}
 \\
 \\
 \\
 \\
 \\
 (114 | 455 \\
 \\
 \\
 \\
 \\
 \\
 \\
 \\
 \end{array}
 \begin{array}{l}
 l. 1. 2. 3 \\
 \\
 \\
 \\
 \\
 \\
 \\
 \\
 \end{array}$$

Makes 114 l. 9 s. 1 d 1:5 of a peny.

4 Rule.

How to find what any yearly Annuities, for any number of years is worth in ready money at 10 pounds in the hundred compound interest. Enter the Table of 10 l. per cent.

cent. with your number of years given, and from the numbers found subtract a unite in the first place, and place a cypher in the last for your dividend; which divide by the number found in the Table against your year given, and the quotient is the answer to the question.

1 Example.

What is 100 pound *per annum* annuity for 21 years worth in ready money at 10 pound in the hundred compound interest? Look in the Table of 10 pound in the hundred for 21 years, and subtract a unite in the first place, and add a cypher in the last, makes 640024990: Divide this by 74002499, the 21 number, adding cyphers, and marking the prime line, & the quotient is 864 l. 17 s. 4 d. 2 q. for the answer to the question demanded.

Example.

$$\begin{array}{r}
 562 \\
 416 \ 177 \\
 360327713 \\
 48004998648 \ 69 \quad \text{li. 1. 2 3} \\
 610024099001000 \ (864|869) \\
 740 \ 240999999 \\
 74002499999 \\
 740024444 \\
 7400222 \\
 74002 \\
 740
 \end{array}$$

S. 5.

3 Example.

2 Example.

Having found what 100 *l.* annuity will amount unto, if you would know what 10 *l.* or 1 *l.* annuity will amount unto, or 1000 *l.* in 21 years; place it in Decimals, and cut off 1, 2, or add 3 cyphers to the last, or remove 3 places, and you shall find your demand.

Example.

1000 <i>l.</i>	100 <i>l.</i>
1.2.3	1.2.3
8648 590	864 869
8648 135.9d. 3:5.	864 1.17 s.4 d.3 q.

10 .	1 <i>l.</i>
1.2.3.4	1.2.3.4.5
86 4869	864869
86 1.9 s.8 d.3 :4	8 1.12 s. 11 d.1:2

3 Example.

What is 546 *l.* yearly annuity for 14 years worth in ready money at 10 *l.* in the hundred; compound interest?

Find the fourteenth number in the Breviate of 10 *l.* in the hundred; from it subtract an Unite in the first place, and add a cypher, makes 2797498 0; which multiply by 546, makes 152743407180; which divide by 3: 974983, the fourteenth number in the Breviate, makes 4012 *l.* 4 s. 2 d. 3 q.

40
 4208
 8010397
 088347552447 li. 1.2.3.4.
 252743407180|0.0(40:2|2 1 1
 37974983333333
 379749888888
 3797499999
 37974444
 379777
 3799
 37

Makes 4022 l. 4 s. 2 d. 3:4.

If a sum of money due at the end of any number of years specified, be bought after any rate *per cent.* compound interest for a price known : to find what that sum due at the end of that term is.

1 Example.

There is a Debt bought for 513 pounds, 3 shillings 2 pence ready money, which was due at 7 years end, now the question is, what the debt was at 10 pound in the hundred compound interest? Set your money paid in Decimals, makes 513/158; which multiply by 19487171, the number against 7 years, cutting off 10 figures, makes 999 pounds, 99 thirds, wanting but one third of 10000

1000 pounds, wherfore I conclude, the debt was 1000 pounds, which was due at 7 years end.

2 Example.

There was a debt bought for 600 pounds which was due at four years end, what was that debt at 10 pound in the hundred compound interest? Multiply 600 pounds by the numbers against 4 years, which are 14 41000 makes 878 pounds, 4600000 sevenths, or in coin 878 pounds, 9 shillings 2 pence, 2:5 of one peny for the sum of that debt.

$$\begin{array}{r} 14641000 \\ 600 \\ \hline \end{array}$$

$$878 | 4600000$$

Makes 878 L. 9 s. 2 d. 2:5 of a penny.

Thus much is thought sufficient for Decimall Arithmetick: In the next place followeth certain Tables exactly calculated, very delightfull and necessary.

T A B L E S O F

{ INTEREST AND { REBATE:

S H E V V I N G

Exactly what is to be allowed for
the forbearance or discount of any
sum paid before or after it be due, at
rate of 6 pounds *per cent per*
annum, according to the
late act of Parliament.

T O G E T H E R

With divers other Tables for the ready
summing up of the price of any Commo-
dity, valuation of Annuities, Leases,
Fines and Reversions, &c.

L O N D O N

Printed for J. In Sweeting at the Angel
in Popes-head Alley. 1655.



The Advertisement to the Reader.



Hereas the late Parliament did by Act bearing date. the 8 of *August*. 1651, prohibit the taking above the rate of 6 pounds for loan of one hundred pound for a year, and so proportionally for any sum: And whereas those Tables for interest formerly composed, were (for the most part) calculated after the rate of 8 *per cent.* it is thought very necessary to publish these Tables which are exactly framed at 6 *per cent. per annum*, and although they are so easie, that they need no explanation; yet lest they should seeme troublesom to the meanest capacity, here are examples for the more ready understanding of them: Therefore take notice, the first Table is composed to shew the just Interest at 6 *per cent. per annum*, for the forbearance of any sum under 1000 *l.* and above

The Advertisement

2 s. 6 d. from one day to 12 moneths, wherefore if you desire to know the interest of any sum for any time, first find out the Table for the time you desire to know ; under which, and against your sum, you shall find your desire. As for example , I desire to know the Interest of 100 l. for 8 months, first find out the Table under 8 months, then find in the first column of that folio, your sum of 100 l. & direct your eye in a straight line till you come under the 8 month, you shall find it to be 4 l. Secondly, I desire to know the interest of 999 l. for 6 months, find first what the interest of 900 l. for 6 months, and place it thus,

	<i>l.</i>		<i>l.</i>		
900	is	27	0	0	
90	is	2	14	0	
9	is	0	5	4:3	
<hr/>		<hr/>			
Total is		29	19	4:3	

So that 999 l. for 6 months is — } 29 l. 19 4 ³/₄

The interest of 1066 l ten days, is as in this Example, seek first what the interest is of

	<i>l.</i>		<i>l.</i>			
	1000	is	1	12	10	2
And so of }	900	is	1	9	7	
the rest. }	60	is	0	1	11	2
	6	is	0	0	2	1

which is in all the sum of 3 4 7 1:
To

To the Reader.

To compute the interest of any less sum then the fourth part of one penny; was thought needless; for he is counted an honest man that pays his due to a farthing: You are further to take notice that a month is taken for the twelfth part of one year, which is about 30 days and ten hours, the year being 365 days. If you desire to know the interest of any sum above 1999 *l.* observe this direction, If it be 2000 *l.* it is but doubling the interest for 1000 *l.* or if it be 3, 4, 5, or 6000 *l.* it is but adding together the interest of 3, 4, 5, or 6 single thousands, it gives you your desire.

Interest

Interest at 6 per cent.

5 Days. | 6 Days. | 7 Days. | 8 Days.

	l.	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.
1000	16	5	1	19	8	2	23	0	0	26	3	2	
900	14	9	2	17	9		20	8	2	23	8		
800	13	1	3	15	9	1	18	4	3	21	0	1	
700	11	6		13	9	2	16	1	1	18	4	3	
600	9	10	1	11	10		13	9	2	15	9	1	
500	8	2	2	9	10	1	11	6		13	1	3	
400	6	6	3	7	10	2	9	2	1	10	6	1	
300	4	11		5	11		6	10	3	7	10	2	
200	3	3	1	3	11	1	4	7		5	3		
100	1	7	2	1	11	2	2	3	2	2	7	2	
90	1	5	3	1	9	1	2	0	3	2	4	1	
80	1	3	3	1	6	3	1	10		2	1		
70	1	1	3	1	4	2	1	7	1	1	10		
60		11	3	1	2		1	4	2	1	6	3	
50		9	3		11	3	1	1	3	1	3	3	
40		7	3		9	1	0	1		1	0	2	
30		5	3		7			8	1	0	9	1	
20		3	3		4	2		5	2		6	1	
10		1	3		2	1		2	3		3		
9		1	3		2			2	1		2	3	
8		1	2		1	3		2			2	2	
7		1	1		1	2		1	3		2		
6		1			1	1		1	2		1	3	
5			3		1			1	1		1	2	
4			3			3		1			1	1	
3			2			2			3			3	
2			1			1			2			2	
1			0		0	0	0		1	0		1	

Interest at 6 per cent.

9 dayes.				10 days				11 days				12 dayes.			
l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	29	7	0	32	10	2	49	3	3	65	9				
900	26	7	2	29	7	0	44	4	2	59	2				
800	23	8		26	3	2	39	5	1	52	7				
700	20	8	2	23	0	0	34	6		46	0	1			
600	17	9		19	3	2	29	7		39	5	1			
500	14	9	2	16	5	1	24	7	3	32	10	2			
400	11	10		13	1	3	19	8	2	26	3	2			
300	8	10	2	9	0	1	14	9	2	19	8	2			
200	5	11		6	6	3	9	10	1	13	1	3			
100	2	11	2	3	3	1	4	11		6	6	3			
90	2	7	3	2	1	2	4	5	1	5	11	0			
80	2	4	1		7	2	3	11	1	5	3				
70	2	0	3		3	2	3	5	1	4	7				
60	1	9	1	1	1	2	2	11	2	3	11	1			
50	1	5	3	1	7	2	2	5	2	3	3	1			
40	1	2		1	3	3	1	11	2	2	7	2			
30		10	2		1	3	1	5	3	1	11	2			
20		7			7	3		11	3	1	3	3			
10		3	2		3	3		5	3		7	3			
9		3			3	2		5	1						
8		2	3		3			4	2						
7		2	1		2	3		4							
6		2			2	1		3	2		4	2			
5		1	3		1	3		2	3		3	3			
4		1	1		1	2		2	1		3				
3		1			1			1	3		2	1			
2			2			3		1			1	2			
1	0	0	1	0	0	1	0	0	2	0	0	3			

Interest at 6 per cent.

1 month					2 months.					3 months.				
l.	l.	s.	d.	q.	l.	s.	d.	q.		l.	s.	d.	q.	
1000	5		0	0	10	0				15				
900	4	10			9					13	10			
800	4	0			8					12				
700	3	10			7					10	10			
600	3	0			6					9				
500	2	10			5					7	10			
400	2	0			4					6				
300	1	10			3					4	10			
200	1	0		0	2					3				
100		10	0		1					1	10			
90		9				18				1	7			
80		8				16				1	4			
70		7				14				1	1			
60		6				12					18			
50		5				10					15			
40		4				8					12			
30		3				6					9			
20		2				4					6			
10		1				2					3			
9			10	3		1	9	2			2	8	1	
8			9	2		1	7				2	4	3	
7			8	1		1	4	3			2	1	0	
6			7			1	2	1			1	9	2	
5			6			1	0	0			1	6		
4			4	3		0	9	2			1	2	1	
3			3	2			7					0	3	
2			2	1			4	3				7	0	
1	0	0	1	0	0	0	2	1	0	0	0	3	2	

Interest at 6. per cent.

4 Monthhs. | 5 Monthhs. | 6 Monthhs.

	l.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	20	0	0	0	25	0	0	0	30	0	0	0	0
900	18				22	10			27				
800	16				20				24				
700	14				17	10			21				
600	12				15				18				
500	0				12	10			15				
400	8				10				12				
300	6				7	10			9				
200	4				5				6				
100	2				2	10			3				
90	1	16			2	5			2	14			
80	1	12			2				2	8			
70	1	8			1	15			2	2			
60	1	4			1	0			1	16			
50	1	0			1	5			1	10			
40		16			1	0			1	4			
30		12				15				18			
20		8				10				12			
10		4				5				6			
9		3	7			4				5	4	3	
8		3	2	1		4	0			4	9	2	1
7		2	9	2		3	6			4	2		
6		2	4	3		3	0			3	7		
5		2				2	6			3	0		
4		1	7			2	0			2	4	3	
3		1	2	1		1				1	9	2	1
2			9	2		1				1	2	1	
1	0	0	4	3	0	0	6	0	9	7	0		

Interest at 6 per cent.

7 Months. | 8 Months. | 9 Months.

l. | l. | s. | d. | q. | l. | s. | d. | q. | l. | s. | d. | q.

1000	35	0	0	0	40	0	0	0	45	0	0	0
900	31	10			36				40	10		
800	28				22				36			
700	24	10			28				31	10		
600	21	0			24				27			
500	17	10			20				22	10		
400	14	0			16				18			
300	10	10			12				13	10		
200	7	0			8				9			
100	3	10			4				4	10		
90	3	3			3	12			4	1		
80	2	16			3	4			3	12		
70	2	9			2	6			3	3		
60	2	2			2	8			2	14		
50	1	5			2	0			2	5		
40	1	8			1	12			1	16		
30	1	1			1	4			1	7		
20		14				6				18		
10		7				8				9		
9		6	3	2		7	2	1		8	1	
8		5	7			6	4	3		7	2	1
7		4	10	3		5	7			6	3	2
6		4	2	1		4	9	2		5	4	3
5		3	6			4	0	0		4	6	
4		2	9	2		3	2	1		3	7	
3		2				2	4	3		2	8	1
2		1	4	3		1	7			1	9	2
1		0	8		0	0	9	2	0	0	10	3

Interest at 6 per cent.

10 months.				11 months.				12 months.			
l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	50	0	0	55	0	0	0	60	0	0	0
900	45			49	10			54			
800	40			44			0	48			
700	35			38	10			42	0	0	0
600	30			33			0	36			
500	25	0	0	27	10	0		30			
400	20			22				24	0	0	0
300	15			16	10		0	18			
200	10			11				12			
100	5	0	0	5	10	0		6	0	0	0
90	4	10		4	19			5	8		
80	4			4	8	0	0	4	16	0	
70	3	10		3	17		0	4	4		0
60	3	0		3	6	6		3	12		0
50	2	10		2	15		0	3	10	0	
40	2	0		2	4	0		2	8		
30	1	10		1	13		0	1	16	0	0
20	1	0		1	2	0		1	4		
10		10		1	1	0	0	0	12	0	0
9		9	0	9	10	3		10	9	2	
8		8		8	9	2		9	7		
7		7		7	8	1		8	4	3	
6		6		6	7	0		7	2	1	
5		5		5	6	0		6		0	
4		4		4	4	3		4	9	2	
3		3		3	3	2		3	7		
2		2		2	2	1		2	4	3	
1	0	1	0	1	1	0	0	1	2	1	

Of Rebate or Discount.

THe use of the Table for Rebate or Discount, is to know how much ought to be allowed for the paying of money before it be due after the rate of 6 *per cent.* As for example, I desire to know what ought to be abated for the paying of 100 *l.* a month before it be due : First seek in the Table for Rebate for 1 month, then find out your sum in the first column on the left hand, and direct your eye in a straight line under the first month, you shall have your desire, which is 9 s 11 d. 1. q. Likewise you shall find the rebate for 100 *l.* for 2 months, 19 s. 9 d. 2 q. For three months, 1 *l.* 9 s. 6 d. 2 q. Secondly, if you desire what ought to be discounted for paying of 1999. 10 months before it be due : First, seek the Table under 10 months, being the time desired, then seek over against 1000 *l.* what 1000 comes unto and place it as followeth : then set the 980 *l.* under that, then 90. and lastly the 9. then find out what ought to be rebated for the particularr sums and add them together, makes the sum desired.

1000 *l.* for 10 M. is 47:12:4:2.

900 for 10 M. is 42:17:1:2.

90 for 10 M. is 4: 5:8:2.

9 for 10 M. is 0: 8:6:3.

1999 *l.* for 10 M. is 95:43:9.1.

T

If

Of Rebate or Discount.

If you buy commodities to the value of 1000 *l.* to pay for them at 3 six months, that is to say, 333 *l.* 6 *s.* 8 *d.* at the end of six moneths, the like sum at the end of 12 moneths, and the third sum at the end of 18 moneths. First seek what ought to be abated for 333 *s.* 8 *d.* for 6 months, and place it thus:

300 *l.* for 6 M. is 08 : 14 : 9 :

30 *l.* for 6 M. is 0 : 17 : 5 : 2

3 *l.* for 6 M. is 0 : 1 : 8 : 3

6 *s.* 8 *d.* for 6 M. is } 0 : 0 : 2 : 1 :

being the 3. part of 1 *l.*

333 : 6. 8. for 6 M. is 09 : 14 : 01 : 2.

300 *l.* for 12 M. is 16 : 19 : 7 : 1

30 for 12 M. is 01 : 13 : 11 : 2

3 for 12 M. is 0 : 3 : 4 : 3

6 *s.* 8 *d.* for 12 M. is } 0 : 0 : 4 : 2

being the 3 part of 1 *l.*

333 : 6 : 8 *d.* for 12 M is 18 : 17 : 4 : 0.

300 *l.* for 18 M. is 24 *l.* 15 : 4 : 3

30 *l.* for 18 M. is 2 9 : 6 : 2

3 *l.* for 18 M. is 0 4 : 11 : 1

6 *s.* 8 *d.* for 18 M. 0 0 6. 2

333 : 6 : 8 *d.* for 18 M. is 27 10 5. 0

which 3 } 333 : 6 8 *d.* for 6 M. 9 *l.* 14 : 01 : 2
sums add } 333 : 6 8 *d.* for 12 M. 18 17 : 4 :
together } 333 : 6 : 8 *d.* for 18 M. 27. 10 : 5.

1000 : 0 : 0 : for 3.6 M. is 56, 01. 10. 2

By

Of Rebate or Discount.

By which appears that there ought to be abated for the paying of 1000 pound, before it be due, as before, 56 *l.* 1 *s.* 10 *d.* 2.9. which take from 1000 pound, there remains due to be paid 1943 *l.* 18.1.2. The same may be done if you are to rebate for many payments, observing the same Rule. If you have occasion to rebate for a greater sum, then 1999 *l.* it is but doubling or trebling the rebate for such a sum as will amount to the sum desired. As if you desire to rebate for 2000 pound, or 3000 pound, it is but adding together what the rebate of 1000 *l.* 2 or 3 times. If you would know the rebate for any sum under 20 *s.* it may with ease be computed to the $\frac{1}{4}$ of a farthing by knowing what is the rebate of 20 *s.* that is to say, if 20 *s.* comes to so much, then 10 *s.* is halfe as much: 6 *s.* 8 *d.* 1 $\frac{1}{4}$ as much, 5 *s.* $\frac{1}{4}$ as much, 4 *s.* $\frac{1}{2}$ as much, 3. 4. $\frac{3}{8}$ as much, &c. These examples are sufficient for the full understanding of these tables of Discount: by what hath been said this may be observed, that to abate 6. *l.* for 100 *l.* for 12 months, is (though common) a great mistake, for it is but 5 *l.* 13.2.1. and the reason why the rebate of 100 *l.* or any other sum is not so much as the interest, will appear in this example. *A* takes to interest of *B.* 100 *l.* and gives engagement to

Of Rebate or Discount.

pay 106 *l.* at the years end ; so that *A.* becomes a debtor to *B.* to pay him 106 at 12 months. Now if *B.* agree with *A.* to receive his money upon discount presently : and if *B.* should allow *A.* as much for discount and for interest, then must there be allowed 6 *l.* 7 : 2 : 1 : because that the interest of 106 *l.* is so much for a year, so that *B.* would be a loser by paying and receiving his hundred pound, 7 s : 2. 1. which is the interest of 6 *l.* so that observe this for a general rule, that the rebate of any sum, and the interest of that sum is no more then the interest of that sum, that is to say, that the rebate of 106 *l.* is no more then the interest of 100 *l.* or the interest of 100 *l.* is as much as the rebate of 106 *l.* for if you are to pay a sum at any time, it is supposed that the same doth include the interest until it be due, and therefore if you owe a sum to pay at time, subtract the interest included in that sum. And the interest for what remains will be the just rebate thereof. As suppose you owe 106 *l.* to be paid at 12 months, subtract the interest included, and the remain is 100 *l.* then the interest of 100 *l.* for 12 months, is 6 *l.* which is the just rebate for the whole 106 *l.*

1 Month

Rebate at 6 per cent.

1 month				2 months.				3 months.			
l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	4	19	6	0	9	18	0	0	14	15	6
900	4	9	6	2	8	18	2	2	13	6	0
800	3	19	7		7	18	4	3	11	16	5
700	3	9	7	3	6	18	7	1	10	6	10
600	2	19	8	1	5	18	9	2	8	17	4
500	2	9	9		4	19	0	0	7	7	9
400	1	19	9	2	3	19	2	1	5	18	2
300	1	9	10	0	2	19	4	3	4	8	8
200		19	10	3	1	19	7		2	19	1
100		9	11	1		19	9	2	1	9	6
90		8	11	1		17	9	3	1	6	7
80		7	11	2		15	10		1	3	7
70		6	11	2		13	10	1	1	0	8
60		5	11	2		11	10	2		17	8
50		4	11	2		9	10	3		14	9
40		3	11	3		7	11	0		11	9
30		2	11	3		5	11	1		8	10
20		1	11	3		3	11	2		5	10
10			11	3		1	11	3		2	11
9			10	3		1	9	1		2	7
8			9	2		1	7			2	4
7			8	1		1	4	2		2	1
6			7			1	2	1		1	9
5			5	3			11	3		1	5
4			4	3			9	2		1	2
3			3	2			7				10
2			2	1			4	3			7
1	0	0	1	0	0	0	2	1	0	0	3

Rebate at 6 per cent.

	4 months				5 months.				6 months			
	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	19	12	1	3	24	7	9	2	29	2	6	1
900	17	12	11		21	19	0	1	26	4	3	1
800	15	13	8	2	19	10	2	3	23	6		
700	13	14	6		17	1	5	2	20	7	9	
600	11	15	3	2	14	12	8		17	9	6	
500	9	16	0	3	12	3	10	3	14	11	3	
400	7	16	10	1	9	15	1	1	11	13		
300	5	17	7	3		6	4		8	14	9	
200	3	18	5		4	17	6	2	5	16	6	
100	1	19	2	2	2	8	9	1	2	18	3	
90	1	15	3	2		3	10	3	2	12	5	
80	1	11	4	1		19	0	1	2	6	7	
70	1	7	5	1	1	14	11	3	2	0	9	1
60	1	3	6	1	1	9	3		1	14	11	1
50		19	7	1	1	4	4	2	1	9	1	2
40		15	8			19	6		1	3	3	2
30		11	9			14	7	2		17	5	2
20		7	0			9	9			11	7	3
10		3	11			4	10	2		5	9	3
9		3	16	1		4	4	2		5	2	3
8		3	12			3	10	3		4	7	3
7		2	8	3		3	4	3		4	0	3
6		2	4			2	11			3	5	3
5		1	12			2	5	1		2	10	3
4		1	6	3		1	11	1		2	3	3
3		1	2			1	5	2		1	8	3
2		1	9	1			1	2		1	1	3
1	0	0	4	2	0		5	3			6	3

Rebate at 6 per cent.

7 months. | 8 months. | 9 months.

l. | l. s. d. q. | l. s. d. q. | l. s. d. q.

1000	33	16	3 3	38	9	2	3	43	1	2	3
900	30	8	8 1	34	12	3	2	38	15	1	1
800	27	1	0 3	30	15	4	2	34	9	11	2
700	23	12	5	26	18	5	2	30	1	10	1
600	20	5	9 2	22	1	6	1	25	16	8	3
500	16	18	1 3	19	4	7	1	21	0	7	1
400	13	10	6 1	15	7	8	1	17	4	5	3
300	10	2	10 3	11	10	9		12	18	4	1
200	6	15	3	7	13	10		8	12	2	3
100	3	7	7 2	3	16	11		4	5	1	1
90	3		10 1	3	9	2	3	3	17	6	
80	2	14	1 1	3	1	6	1	3	8	20	3
70	2	7	4	2	13	10		3		3	1
60	2		6 3	2	6	1	3	2	11	8	
50	1	13	9 3	1	18	5	2	2	3		3
40	1	7	2	1	10	9		1	14	5	1
30	1		3 1	1	3		3	1	5	10	
20		13	6 1		15	4	2	17		2	2
10		6	9		7	8	1	8		7	0
9		6	10		6	11	0	7		9	
8		5	4 3		6	1	3	6	10	2	
7		4	8 3		5	4	2	6	0	1	
6		4	0 2		4	7	1	5	2		
5		3	4 2		3	10		4	3	2	
4		2	8 1		3		3	3	5	1	
3		2	1		2	3	2	2	7		
2		1	4 0		1	6	1	1	8	2	
1			8			9		0	10	1	

Rebate at 6 per cent.

10 months. | 11 months. | 12 months.

l. | l. s. d. q. | l. s. d. q. | l. s. d. q.

1000	47	12	4	2	52	2	7	3	56	12	0	3
900	42	17	1	2	46	18	4	2	50	18	10	1
800	38	1	10	3	41	14	1	1	45	5	7	3
700	33	6	8	0	36	9	10	1	39	12	5	1
600	28	11	5		31	5	7		33	18	2	3
500	23	16	2	1	26	1	3	3	28	6	0	1
400	19	0	11	1	20	17		2	22	12	9	3
300	14	5	8	2	15	12	9	2	16	19	7	1
200	9	10	5	2	10	8	6	1	11	6	4	3
100	4	15	2	3	5	4	3		5	13	2	1
90	4	5	8	2	4	13	10		5	1	10	2
80	3	16	2	1	4	3	4	3	4	10	6	3
70	3	6	8		3	12	11	3	3	19	2	3
60	2	17	1	2	3	2	6	2	3	7	11	
50	2	7	7	1	2	12	1	2	2	16	7	1
40	1	18	1		2	1	8	1	2	5	3	1
30	1	8	6	3	1	11	3	1	1	13	11	2
20		19	0	2	1		10		1	2	7	2
10		9	6	1		10	5		11	3	3	
9		8	6	3		9	4	2	10	2	1	
8		7	7	1		8	4		9		2	
7		6	8			7	3	2	8	11		
6		5	8	2		6	3		6	9	2	
5		4	9			5	2	2	5	7	3	
4		3	7	2		4	2		4	6	1	
3		2	10	1		3	1	2	3	4	3	
2		1	10	3		2	1		2	3		
1		0	11	1		1	0	2	1	1	2	

Rebate at 6 per cent.

13 Months. | 14 Months. | 15 Months.

	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	61	0	7	3	65	8	4	3	69	15	4	
900	54	18	7		58	17	6	3	62	15	9	3
800	48	16	6	1	52	6	8	3	55	16	3	1
700	42	14	5	2	45	15	10	2	48	16	8	3
600	36	12	4	2	39	6		2	41	17	2	2
500	30	10	3	3	32	14	2	1	34	17	8	
400	24	8	3	0	26	3	4	1	27	18	1	2
300	18	6	2	1	19	12	6	1	20	18	7	1
200	12	4	1	2	13	1	8		13	19	3	
100	6	2	9	3	6	10	10		6	19	6	1
90	5	9	10	1	5	17	9		6	5	6	3
80	4	17	7	3	5	4	8		5	11	7	2
70	4	5	5	1	4	11	7		5	7	8	
60	3	13	2	3	3	18	6		4	3	8	2
50	3	1		1	3	5	5		3	9	9	
40	2	8	9	2	2	12	4		2	15	9	3
30	1	16	7	1	1	19	3		2	1	0	1
20	1	4	4	3	1	6	2		1	7	0	3
10		12	2	1		13	1			13	11	1
9		10	11	3		11	9	1		12	6	2
8		9	9			10	5	2		11	1	3
7		8	6	2		9	1	3		9	9	
6		7	3	3		7	10			8	4	1
5		6	1			6	6	2		6	11	2
4		4	10	2		5	2	3		5	6	3
3		3	7	3		3	11			4	2	
2		2	5	1		2	7	1		2	9	1
1		1	2			1	3	2		1	4	2

Rebate at 6 per cent.

16 Months. | 17 Months. | 18 Months.

l.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	74	1	5	3	78	6	9	3	82	11	4	2
900	67	13	4		70	10	1	2	74	6	2	3
800	59	5	2		62	13	5	1	66	1	1	
700	51	17	0	1	54	16	9	1	57	15	11	2
600	44	8	10	2	47	0	1		49	10	9	3
500	37	0	8	3	39	3	4	3	41	5	8	1
400	29	12	7	0	31	6	8	2	33	0	6	2
300	22	4	5	1	23	10		2	24	15	4	3
200	14	16	3	2	15	13	4	1	16	10	3	1
100	7	8	1	3	7	16	8		8	5	1	2
90	6	13	4		7	1			7	8	7	1
80	5	18	6		6	5	4		6	12	1	1
70	5	3	8	1	5	9	8		5	15	7	
60	4	8	10	2	4	14			4	19	0	3
50	3	14	0	3	3	18	4		4	2	6	3
40	2	19	3		3	12	8		3	6		2
30	2	4	5	1	2	7			2	9	6	2
20	1	9	7	2	1	1	4		1	13		1
10		14	9	3		15	8			16	6	
9		13	4			14	1			14	10	1
8		11	10			12	6	1		13	2	2
7		10	4	1		10	11	2		11	6	2
6		8	10	2		9	4	3		9	11	3
5		7	4	3		7	10			8	3	
4		5	11			6	3			6	7	1
3		4	5	1		4	8	1		4	11	1
2		2	11	2		3	1	2		3	3	2
1		1	5	3		1	6	3		1	7	3

19 Months. | 20 Months. | 21 Months.

	l.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	86	15	1	3	90	18	2	95	0	5	1		
900	78	1	7	2	81	16	4	1	85	10	4	3	
800	69	8	1	2	72	14	6	2	76	0	4	1	
700	60	14	7	1	63	12	8	2	66	10	3	3	
600	52	1	1		54	10	10	3	57		3	1	
500	43	7	6	3	45	9	1		47	10	2	2	
400	39	14		3	36	7	3	1	38		2		
300	26	0	6	2	27	5	5	1	28	10	1	2	
200	17	7		1	18	3	7	2	19		1		
100	8	13	6		9	1	9	3	9	10		2	
90	7	16	1	3	8	3	7	2	8	11		1	
80	6	18	9	3	7	5	5	1	7	12		1	
70	6	1	5	2	6	7	3	1	6	13		1	
60	5	4	1	1	5	9	1		5	14		1	
50	4	6	9		4	10	10	3	4	15		1	
40	3	9	4	3	3	12	8	2	3	16			
30	2	12	0	2	2	14	6	2	2	17			
20	1	14	8	1	1	16	4	1	1	18			
10		17	4			18	2			19			
9		15	7	1		16	4	1		17	1	1	
8		13	10	2		14	6	2		15	2	1	
7		12	1	3		12	8	2		13	3	2	
6		10	4	3		10	10	3		11	4	3	
5		8	8			9	1			9	6		
4		6	11	1		7	3	1		7	7		
3		5	2	1		5	5	1		5	8	1	
2		3	5	2		3	7	2		3	9	2	
1		1	8	3	0	1	9	3		1	10	3	

Rebate at 6 per cent.

22 Months. | 23 Months. | 24 Months.

l.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1000	99	1	11	3	103	2	9	1	107	12	10	1
900	89	3	9	1	92	16	6		96	18	6	3
800	79	5	7		82	10	2	2	85	14	3	1
700	69	7	4	2	72	3	11	1	75			
600	59	9	2	1	61	16	8		64	5	8	2
500	49	10	11	3	51	11	4	2	53	11	5	
400	39	12	9	2	41	5	1	1	42	17	1	2
300	29	14	7		30	18	10		32	2	10	1
200	19	16	4	3	20	12	6		21	8	6	3
100	9	18	2	1	10	6	3	1	10	14	3	1
90	8	18	4	2	9	5	7	3	9	12	10	5
80	7	18	6	2	8	5		1	8	11	5	
70	6	18	8	3	7	4	4	2	7	10		
60	5	18	11		6	3	9		6	8	6	3
50	4	19	1		5	3	1	2	5	7	1	2
40	3	19	3	1	4	2	6		4	5	8	2
30	2	19	5	2	3	1	10	2	3	4	3	1
20	1	19	2	2	2	1	3		2	2	10	1
10		19	9	3	1		7	2	1	1	5	0
9		17	10			18	6	3		19	3	1
8		15	10	1		16	6			17	1	2
7		13	10	1		14	5	1		15		
6		11	10	2		12	4	2		12	10	1
5		9	10	2		10	3	3		10	8	2
4		7	11			8	3			8	6	3
3		5	11	1		6	2	1		6	5	
2		3	11	2		4	1	2		4	3	1
1		1	11	3	0	2	0	3		2	1	2

*Of the Table of Accounts ready cast up;
and the various use thereof.*

THe Use of the following Table of Accounts ready cast up, are many, First, if you buy any commodity by the weight, as pound, hundred, or the like; or by the Ell, Yard, Foot, Inch; or measure, as by the Peck, Bushell, Sack, Quarter, or the like, knowing what you give for one Pound, Ell, Bushell, &c. the Table shews what any number of Pounds, Ells, or Bushells comes unto at the same rate. As for example, I buy a thousand yards of Packthreed at a farthing a yard, how much cometh the thousand yards unto? First, seek in the Table and find over head 1 farthing, and then find your number in the margent, and in a direct Line over against your number, under 1 farthing is 1 l. c. 10 d. the sum desired. Secondly, I desire to know what 1436 Ells of Linnen, at seven pence the Ell comes unto: Seek in the head of the Table for 7 pence, then seek what 1000 times seven pence is, and place it as in the following Example.

1000

1000. 7 d. is : 9. l. 3. 4

400 7 d. is 11. 13. 4

30 7 d. is 0. 17. 6

6 7 d. is 0. 3. 6

1436. 7 d. is 41. 17. 8

Then seek in the same Table for 400, then for 30, and lastly for 6, add them together, gives your desire, as in the fore-going example.

Thirdly, if I buy or sell 1999 foot of timber at 4 d. 3 farthings the foot, what will the whole cost?

First, seek what 1999 4 pence comes unto, and then what 1999 3 farthings comes unto, and add them together, gives your desire as in this example.

l.

1000. 4 d. is 16 : 13 : 4

900. — is 15 : 0 : 0

90. — is 1 : 10 : 0

9. — is 0 : 3 : 0

1000. 3 far. is 3 : 2 : 6

900. — is 2 : 16 : 3

90. — is 0 : 5 : 7. 2

9. — is 0 : 0 : 6. 3

The totall is 39; 11 : 3. 1

If you desire to know what any quantity
of

of commodity comes unto at a greater rate then 1 s. the pound, &c. First, seek what it comes unto at 1 s. and you may with ease know how much it comes unto at more : for two shillings is double, three shillings is treble, four shillings is four times as much ; which is so easie, that to expect them ready cast up to hand, would suppose much weakness. By these examples the meanest capacity may find what any quantity of any thing comes unto, at what price soever the pound, ell, yard, &c. By this Table also you may readily reduce farthings or pence into pounds ; so to do you must suppose the first column of numbers to be either farthings or pence. As for example, If I desire to know how much 1000 farthings is, First find 1000 in the first column, and under 1 farthing you shall find 1 pound 10 d. your desire. 1000 half pence is 2 l. 1 s. 8 d. 1000 pence, seek under the Table 1 penny, you will find to be 4 l. 3 s. 4 d. 1647 pence makes by the Table as followeth.

	2.	
1000 is	4 : 3 : 4	
600 is	2 : 10 0	
40 is	0 : 3 : 4	
7 is	0 : 0 : 7	
<hr/>		
The totall is	6 : 17 : 3	
		Further

Further may be known by this Table the interest of any sum of money at five pound *per cent. per annum*, if you do but suppose the pence in the head of the Table, to stand for so many months, and the number in the first column to be pounds. As for example, I desire to know the interest of 196 pound for 10 months: Seek the Table where 10 pence stands over head, and there you shall find over against each sum, as followeth, 100 *l.* to come unto 4 *l.* 3 *s.* 4 *d.* 60 *l.* to 2 *l.* 10 *d.* 0. and 9 *l.* to 7 *s.* 6 *d.* which add together makes 7 *l.* 0. 10 *d.* being the interest of 169 *l.* for 10 months. If you desire to know what the interest of any sum comes unto at 10 *per cent.* it is but doubling five *per cent.* Manifold use may be made of this Table of Account ready call up, but I leave the further explanation to the ingenious.

1 Farthing. 2 Farthings. 3 Farthings.

	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
2000	2	1	8		4	3	4	0	6	5		
1000	1		10		2	1	8		3	2	6	
900		1	8	9	1	17	6		2	16	3	
800		1	6	8	1	13	4		2	10		
700		1	4	7	1	9	2		2	3	9	
600		1		6	1	5			1	17	6	
500		1	0	5	1		10		1	11	3	
400			8	4		16	8		1	5	0	
300			6	2		12	6		1	18	9	
200			4	2		8	4		1	12	6	
100			2	1		4	2			6	3	
90		1	10	2		3	9			5	7	2
80		1	8			3	4			5		
70		1	5	2		2	11			4	4	2
60		1	3	0		2	6			3	9	
50		1		2		2				3	1	2
40			10			1	8			2	6	
30			7	2		1	3			1	10	2
20			5				10			1	3	
10			2	2			5				7	2
9			2	1			4	2			6	3
8			2				4					
7			1	3			3	2			5	1
6			1	2			3				4	2
5			1	1			2	2			3	3
4			1				2					
3				3			1	2			2	1
2				2			1				1	2
1				1			0	2				3

1 Penny: | 2 Pence. | 3 Pence | 4 Pence

l.	l. s. d.	l. s. d.	l. s. d.	l. s. d.
2000	8 6 8	16 13 4	25 0 0	33 6 8
1000	4 3 4	8 6 8	12 10 0	16 13 4
900	3 15 8	7 10 4	11 5 0	15 6 8
800	3 6 8	6 13 4	10 0 0	13 6 8
700	2 18 4	5 16 8	8 15 0	11 13 4
600	2 10 8	4 0 0	7 10 0	10 6 8
500	2 8 8	3 3 4	6 5 0	8 6 8
400	1 13 4	2 6 8	5 0 0	6 13 4
300	1 5 0	1 10 4	3 15 0	5 6 8
200	16 8 8	13 4 8	2 10 0	3 6 8
100	8 4 8	16 8 8	1 5 0	1 13 4
90	7 6 8	15 4 8	1 2 0	1 10 0
80	6 8 8	13 4 8	1 0 0	1 6 8
70	5 10 4	11 8 8	17 6 8	1 3 4
60	5 0 0	10 4 8	15 6 8	1 6 8
50	4 2 8	8 4 8	12 6 8	13 4
40	3 4 8	6 8 8	10 6 8	10 6 8
30	2 6 8	5 0 0	7 6 8	6 8
20	1 8 8	3 4 8	5 6 8	3 4
10	10 8 8	1 6 8	2 3 4	3 2 8
9	9 8 8	1 4 8	2 1 9	2 4
8	8 8 8	1 2 8	1 1 6	2 1 8
7	7 8 8	1 0 8	1 1 3	1 1 4
6	6 8 8	10 6 4	9 6 3	1 8
5	5 8 8	8 4 3	6 6 3	1 4
4	4 8 8	6 4 3	6 6 3	1 8
3	3 8 8	4 4 3	6 6 3	1 4
2	2 8 8	3 4 3	6 6 3	1 8
1	1 8 8	2 4 3	6 6 3	1 4

5 pence. | 6 pence | 7 pence. | 8 Pence.

I. I. s. d.			I. s. d.			I. s. d.			I. s. d.		
2000	4	1	13	4	50	58	6	8	66	13	4
1000	2		16	8	25	29	3	4	33	6	3
900	12		15	22	10	26	5		30		
800	6	8	13	4	20	23	6	8	26	13	4
700	14	11	8	17	10	20	8	4	23	6	8
600	12	10		15		17	10		20		
500	10	8	4	12	10	14	11	8	6	13	4
400	8	6	8	10		11	3	4	13	7	8
300	6	5		7	10	8	5		10		
200	4	3	4	5		5	6	8	6	13	4
100	2	1	8	2	10	2	18	4	3	6	8
90	1	17	6	2	5	2	12	6	3		
80	1	13	4	2		2	6	8	2	15	4
70	1	9	2	1	15	2		10	2	6	8
60	1	5		1	10	1	15		2		
50	1	0	10	1	5	1	9	2	1	13	4
40		16	8	1		1	3	4	1	6	8
30		12	6		15		17	6	1		
20		8	4		10		11	8		13	4
10		4	2		5		5	10		6	8
9		3	9		4		5	3		6	
8		3	4		4		4	8		5	4
7		2	1		3		4	1		4	8
6		2	6		3		3	6		4	
5		2	1		2		2	11		3	4
4		1	8		2		2	4		2	8
3		1	3		1		1	9		2	
2			10		1		1	2		1	4
1			5		1		0	7			8

9 pence. | 10 pence | 11 pence. | 1 shilling.

	l. l. s. d.			l. s. d.			l. s. d.			l. s.	
2000	75	0	0	83	6	8	91	13	4	100	0
1000	37	10		41	13	4	45	16		50	
900	33	15		37	10		41	5		45	
800	30			33	6	8	36	13	4	40	
700	26	5		39	3	4	52	1	8	35	
600	22	10		25			27	10		30	
500	18	15		20	6	8	22	18	4	25	
400	15			16	13	4	18	6	8	20	
300	11	5		12	10		13	15		15	
200	7	10		8	6	8	9	3	4	10	
100	3	15		4	3	4	4	1	8	5	
90	3	7	6	3	15		4	2	6	4	10
80	3			3	6	8	3	13	4	4	
70	2	12	6	2	18	4	3	4	2	3	10
60	2	5		2	10		2	15		3	
50	1	17	6	2	1	8	2	5	10	2	10
40	1	10		1	13	4	1	16	8	2	
30	1	2	6	1	5		1	7	6	1	10
20		15			16	8		18	4	1	
10		7	6		8	4		9	2		10
9		6	9		7	6		8	3		9
8		6			6	8		7	4		8
7		5	3		5	10		6	5		7
6		4	6		5			5	6		6
5		3	9		4	2		4	7		5
4		3			3	4		3	8		4
3		2	3		2	6		2	9		3
2		1	6		1	8		1	10		2
1			9			10			11		1

A Table shewing how much the hundred cost at any rate the pound, necessary for buying or selling any thing by the pound or hundred.

One pound the cost of one				One pound the price of one				One pound the price of one						
cost hundred				cost hundred				cost hundred						
d. q.	l.	s.	d.	d. q.	l.	s.	d.	d. q.	l.	s.	d.			
0.	1		2	4	6.	1	2	18	4	12.	1	5	14	4
8.	2		4	8	6.	2	3	0	8	12.	2	5	16	8
0.	3		7		6.	3	3	3	0	13.	3	5	19	0
1.	0		9	4	7.	0	3	5	4	13.	0	5	1	4
1.	1		11	8	7.	1	3	7	8	13.	1	6	3	8
1.	2		14		7.	2	3	10	0	13.	2	5	6	0
1.	3		16	4	7.	3	3	12	4	13.	3	5	8	4
2.	0		18	8	8.	0	3	14	8	14.	0	5	10	8
2.	1	1	1	0	8.	1	3	17	0	14.	1	0	13	0
2.	2	1	3	4	8.	2	3	19	4	14.	2	6	15	4
2.	3	1	5	8	8.	3	4	1	8	14.	3	6	17	8
3.	0	1	8	0	9.	0	4	4	0	15.	0	7	0	0
3.	1	1	10	4	9.	1	4	6	4	15.	1	7	2	4
3.	2	1	12	8	9.	2	4	8	8	15.	2	7	4	8
3.	3	1	15	0	9.	3	4	11	0	15.	3	7	7	0
4.	0	1	17	4	10.	0	4	13	4	16.	0	7	9	4
4.	1	1	19	8	10.	1	4	15	8	16.	1	7	11	8
4.	2	2	2	0	10.	2	4	18	0	16.	2	7	14	0
4.	3	2	4	4	10.	3	5	0	4	16.	3	7	16	4
5.	0	2	6	8	11.	0	5	2	8	17.	0	7	18	8
5.	1	2	9	0	11.	1	5	5	0	17.	1	8	1	0
5.	2	2	11	4	11.	2	5	17	4	17.	2	8	3	4
5.	3	2	13	8	11.	3	5	9	8	17.	3	8	5	8
6.	0	2	16	0	12.	0	5	12	0	18.	0	8	8	0

2
1
By this Table is exactly cast up how much
the great hundred (*viz.* 112. pound) cost
at any rate the pound, from one farthing to
18 pence the pound, being necessary for Re-
tailers. First, find what your commodity
cost the pound in the table under one pound
cost, and in the next column you have the
cost of one hundred at that rate. Likewise
if any commodity cost so much the hun-
dred, in the next column you have how
much it is the pound after the same rate.
Example, three farthings the pound is 7 s.
the hundred, 10 d. farthing the pound is
4 l. 15. 8. the hundred, 8 l. 8 s. the hun-
dred, is 18 d. the pound, 7 l. the hundred is
15 d. the pound. Likewise if a commodity is
bought or sold for more then 18 d. the
pound, that is to say, for 2 s. 3 s. 5 s. or 10 s.
the pound to cast up, is so easie that a Table
is esteemed needless, and therefore purpose-
ly omitted.

	By the day,			By the week,			By the month,			By the year,		
	l. s. d.			l. s. d.			l. s. d.			l. s. d.		
Pence,	1	0	0	7	0	2	4	1	10	5		
	2	0	1	2	0	4	8	3	0	10		
	3	0	1	9	0	7	0	4	13	3		
	4	0	2	4	0	9	4	6	1	8		
	5	0	2	11	0	11	8	7	12	1		
	6	0	3	6	0	14	0	9	2	6		
	7	0	4	1	0	16	4	10	12	11		
	8	0	4	8	0	18	8	12	3	4		
	9	0	5	3	1	10		13	13	9		
	10	0	5	10	1	3	4	15	4	2		
	11	0	6	5	1	5	8	16	14	6		

Shillings,	1	0	7	0	1	8	0	18	5	0
	2	0	1	0	2	16	0	36	10	0
	3	1	0	0	4	4	0	54	15	0
	4	1	8	0	5	12	0	73	0	0
	5	1	15	0	7	0	0	91	5	0
	6	2	0	0	8	8	0	109	10	0
	7	2	5	0	9	16	0	127	15	0
	8	2	16	0	11	4	0	146	0	0
	9	2	3	0	12	12	0	164	5	0
	10	3	10	0	14	0	0	182	10	0
	11	3	1	0	15	8	0	215	0	0
	12	4	4	0	16	16	0	219	0	0
	13	4	13	0	18	4	0	237	5	0
	14	4	18	0	19	12	0	255	10	0
	15	5	5	0	21	0	0	273	15	0
	16	5	12	0	22	8	0	292	0	0
	17	5	19	0	23	16	0	310	5	0
	18	6	0	0	25	4	0	328	10	0
	19	6	13	0	26	12	0	346	15	0
	20	6	0	0	28	0	0	365	0	0

This Table sheweth exactly what any sum from one peny to one pound cometh unto by the week, the month, or the year, so easie that it need no further explanation.

The next Table sheweth the increase of a yearly payment, pension or rent, being forborn after the rate of 6 *per cent. per annum*, for one, two, three, four, five, or 20 pound a year, and so for ten, twenty, thirty, forty, fifty, or 100, 200, 300, 400, 500 pound a year, I desire to know how much it would amount unto at the end of ten years if I forbear to receive any of the said rent or pension, after the rate of 6 *per cent. per annum*. First, find out in the head of the Table two pounds, then find in the first column ten years, and in a direct line under two pounds and against ten years, shews your desire, which is 26 *l. 7 s 2 d*, and 7 tenths of a peny. Again, a pension of 20 pound *per annum*, forborn for 20 years, you will find in the Table to come unto 735 pound, 14 shillings 2 *d.* $\frac{3}{4}$.

If you desire to know what ten, twenty, thirty, forty or fifty pounds a year comes unto, being forborn for any terms of years under 31, multiply what one, two, three, four or five pounds a year comes unto for your desired terms of years by ten, and it shews your desire. As for example, I desire to know what fifty pounds a year, forborn for one and twenty years, comes to at 6 *per cent.* First seek what five pound comes

to for 21 years, which is 199 *l.* 19 *s.* 3 *d.* 2,
 which multiply by ten, that is, only adding a
 cypher to each

	<i>l.</i>	<i>s.</i>	<i>d.</i>
sum thus : ———	1990	190	30 20

Which reduce thus--

1990	0	0	
------	---	---	--

190 <i>s.</i> is —	9	10	0
--------------------	---	----	---

30 <i>d.</i> is	0	2	6
-----------------	---	---	---

20 tenths is	0	0	2
--------------	---	---	---

1999	12	8
------	----	---

Which added together wil produce your de-
 fire.

If you desire to know what 1, 2, 3, 4, or
 500 *l.* in a yearly paiment comes unto, be-
 ing forborn for any term of years ; it is but
 multiplyiug 1, 2, 3, 4, or 5 by 100 for the
 desired time, and it shews your desire. Ex-
 ample, I desire to know what a yearly pai-
 ment of 543 will come to being forborn for
 18 years: seek what 5 pound comes unto for
 the time, which is 154. 10. 6. 7, which
 multiply by 100, that is, add two cyphers to
 every sum thus, 15400 *l.* 1000 *s.* 600, 700
 tenths, which reduction comes unto the four
 first sums, then seek what four pound a year
 comes unto for 18 years, which is 123 *l.*
 12 *s.* 5 *d.* 4. which multiply by 10, onely ad-
 ding a cypher, thus, 1230 *l.* 120 *s.* 50 *d.* 40.
 which add. Then seek how much 3 *l.* a year
 comes unto for 18 years. which is 92. 14. 4.

U

which

which place underneath, and the totall gives
your desire.

	15400	0	0
1000 s. —————	50	0	0
600 d. —————	2	10	0
700 tenths. ———	0	5	10
	1230	0	0
120 s. ———	6	0	0
50 d. ———	0	4	2
40 tenths. ———	0	0	4
	92	14	4
<hr/>			
	16781	14	8

By these Examples may plainly appear that
although the Table is but calculated for the
yearly rent, pensions, or payment of 1, 2, 3;
4, 5, or 20 *l.* yet observing these directions,
any yearly payment may be with much ease
known.

*The Digit Numbers so placed, that three
of them make fifteen 8 severall ways.*

8	3	4
1	5	9
6	7	2

ives

hat
the
3;
ns,
afe

ree

1 Pound.				2 Pound.				3 Pound.				
yea	l.	s.	d.	10	l.	s.	d.	10	l.	s.	d.	10
1	1	0	0	0	2	0	0	0	3	0	0	0
2	2	1	2	4	4	2	4	8	6	3	7	2
3	3	3	8	0	6	7	4	1	9	11	0	1
4	4	7	5	9	8	14	11	8	13	2	2	7
5	5	12	8	9	1	5	5	1	16	8	2	7
6	6	19	6		12	19	0	1	20	18	6	2
7	8	7	10	5	16	5	9	0	25	3	7	3
8	9	17	11	3	19	15	10	7	29	13	10	1
9	11	9	9	9	22	19	7	8	34	9	5	7
10	13	3	7	3	26	7	2	7	39	10	10	1
11	14	19	5	1	29	18	10	3	44	18	3	5
12	16	17	4	7	33	14	9	5	50	12	2	3
13	18	17	7	7	37	15	3	4	56	12	11	1
14	21	0	3	6	42	0	7	2	63	0	10	8
15	23	5	6	2	46	11	0	4	69	16	6	6
16	25	13	5	4	51	6	10	8	77	0	4	2
17	28	4	3	0	56	8	6	1	84	12	9	2
18	30	18	1	3	61	16	2	7	92	14	4	0
19	33	15	2	3	67	10	4	7	101	5	7	1
20	36	15	8	5	73	11	5	0	110	7	1	6
21	39	19	10	2	79	19	8	5	119	19	9	7
22	43	7	10	1	86	15	8	2	130	3	6	4
23	46	19	10	9	93	19	9	9	140	19	8	9
24	50	16	3	7	101	12	7	4	152	8	11	2
25	54	17	3	4	109	14	6	9	164	11	10	4
26	59	3	1	5	118	6	3	0	177	9	4	5
27	63	14	1	3	127	8	2	7	191	2	4	1
28	68	10	6	7	137	1	1	4	205	11	8	2
29	73	12	9	5	147	5	7	1	220	18	4	6
30	79	1	1	9	158	2	3	9	237	3	5	8
31	84	16	0	4	169	12	0	8	254	8	1	2

4 Pound. 5 Pound. 20 Pound.

years	l.	s.	d.	10	l.	s.	d.	10	l.	s.	d.	10
1	4	0	0	0	5	0	0	0	20	0	0	0
2	8	4	9	6	10	6	0	0	41	4	0	0
3	12	14	8	2	15	18	4	3	63	13	5	2
4	17	9	11	6	21	17	5	5	87	9	10	1
5	22	10	11	6	28	3	8	5	112	14	10	0
6	27	18	0	3	34	17	6	3	139	10	5	5
7	33	11	6	0	41	19	4	6	167	17	6	4
8	39	11	9	5	49	9	8	9	197	18	11	8
9	45	9	3	6	57	9	1	5	229	16	6	3
10	52	14	5	5	65	18	0	9	263	12	3	8
11	59	17	8	7	74	17	1	9	299	18	7	8
12	67	10	7	1	84	6	1	9	337	7	11	7
13	75	10	6	8	94	8	2	5	377	12	10	2
14	84	1	2	4	105	1	6	0	420	6	0	3
15	93	2	0	9	116	7	7	1	465	17	4	6
16	102	13	9	6	128	7	3	0	513	9	0	1
17	112	17	0	3	141	1	3	4	564	5	1	8
18	123	12	5	4	154	10	6	7	618	2	3	1
19	123	0	9	5	165	15	1	9	675	3	11	9
20	153	2	10	1	183	18	6	7	735	14	2	8
21	159	19	5	0	199	19	3	2	799	17	1	0
22	173	11	4	5	216	19	2	7	867	16	10	9
23	187	19	7	9	234	19	6	9	939	18	3	9
24	103	5	2	9	254	1	6	6	1016	6	2	7
25	219	9	1	9	274	6	5	4	1097	5	9	6
26	236	12	6	1	295	15	7	6	1183	2	6	6
27	254	16	5	5	318	10	6	9	1274	2	3	6
28	274	2	2	9	342	12	9	7	1370	11	2	9
29	294	11	2	2	368	3	1	7	1472	15	11	0
30	316	4	7	8	395	5	9	8	1581	3	3	2
31	339	4	1	6	424	0	2	0	1696	0	8	0

This following table serveth to shew the
 just value of any annuity, yearly rent, pension
 or payment from 1 *l.* to 9 *l.* a year, and so for
 10, 20, 30, 40, 50, 60, 70, 80, 90 *l.* a year, or
 from 100 to 900 a year, or from 1000 to
 9000 *per annum*, or for any sum desired af-
 ter the rate of 6 *per cent. per an.* for any terms
 of years from 1 to 31, so that if you desire to
 know what any annuity is worth ready money
 for any term of years under 31, may with
 ease be found in the first table following, as
 also many other resolutions very necessary
 & delightful, which wil better appear in these
 few examples following. I desire to know
 what a lease, annuity or yearly payment of
 6 *l.* the year for 15 years, is worth *per cent.*
 money, after the rate of 6 *per cent.* To be re-
 solved of this or the like question, first find
 out the yearly rent in the upper part of the
 table, then your term of years in the first co-
 lumn, and in a direct line from 15 years in the
 first column under the yearly sum of 6 *l.* is
 your desire, that is, 58 *l.* 5 *s.* 5 *d.* and 6 tenths
 of a peny. 6 *l.* a year for ten years to come,
 is worth 44. 3. 2 $\frac{1}{2}$. 6 *l.* a year is worth af-
 ter the same rate for five years to come;
 25. 5. 5. $\frac{1}{2}$. 6 *l.* a year for 31 years to come,
 is valued at 83 *l.* 11. 5. $\frac{3}{4}$. 1 *l.* a year for 31
 years, comes unto 13 *l.* 18. 6. $\frac{1}{2}$. and 1 *l.*
per an. for 21 years, comes unto 11 *l.* 15. 3 $\frac{1}{2}$.

By which may be observed, that a lease or yearly payment after the rate of 6 *per cent.* for 21 years, is 11 years and 3 quarters purchase. And for 31 years at the same rate neer 14 years purchase. Thus much for the finding the yearly value of any sum under 9 *l.*, *per annum* Now if you desire to know the value of any sum above 9 *l.* *per an.* multiply such a sum by 10, 100, or 1000, as will answer your desire. As for example, I desire to know the value of a yearly payment of 50 *l.* for the term of 27 years, first seek what 5 *l.* a year comes unto, which is 66 *l.* 1 *s.* 0 *d.*, which multiply by 10, that is, add a cypher to every sum thus, 660 *l.* 10 *s.* 00 *d.* 60 which gives your desire, *viz.* 660 *l.* 10 *s.* 6 *d.* Again 90 *l.* *per an.* for 15 years, 9 *l.* *per an.* for 15 years, is 87 *l.* 8 *s.* 2 *d.*, which multiply by ten is 870 *l.* 80 *s.* 20 *d.*, which reduce thus, 870 *l.* 80 *s.* is 4 *l.* 20 *d.* is 1 *s.* 8 *d.* & 70 tenths is 7 pence, which add together, gives your desire. 874 *l.* 2 *s.* 3 *d.* the value of 90 *l.* *per an.* for 15 years to come. If you desire to know the value of a yearly payment above 100 *l.* *per an.* Example, how much comes 800 *l.* a year for 21 yeares to come at the same rate afore said, first find what 8 *l.* a year comes to for 21 years, which is 94 *l.* 2 *s.* 3 *d.* which multiply by 100, that is, add 2 cyphers to every sum thus, 9400 *l.* 200 *s.* 300 *d.* which

which reduce the 200 s, is 10 l. and 300 d. is 25 s. in all 94 11 l. 5 s. 6 d. which is the value of 800 l. *per annum* for 21 years.

If the value of 1964 pound *per annum*, for any term of years be desired first find the value of 1000 l. *per annum*, then of 900 l., next 60 l. *per an.* & last of 4 l. for the term desired, and add them together shews your desire. If one hath a lease of a term of years, and the value of a lease of a term of years in reversion of that precedent lease be desired, first find out what the first lease is worth, and then seek what the first lease and the lease in reversion both together come unto: subtract the first leases value from the whole, the remain is the value of the lease in reversion. For example, A hath a lease for 15 years of 7 l. *per an.* what is it worth at 6 *per cent.* to make up that lease 31 years, that is to say, what is 16 years after or in the reversion of 15 years, worth? First find the worth of 7 l. *per an.* for 15 years, which is 67 l. 19. 8. 5. then find out what it is worth when the 16 years are added, that is, 7 l. *per an.* for 31 years, which is, 97 l. 10 s. subtract the value of 15 years from the value of 31 years, the remain is your desire, which is, 29 l. 10 s. 3 d. 5.

The value of Annuities at 6 per cent.

years	1 Pound			2 Pound			3 Pound		
	l.	s.	d. to.	l.	s.	d. to.	l.	s.	d. to.
1	0	18	10	4	1	17	8	8	2
2	1	16	8	0	3	13	4	0	5
3	2	13	5	5	5	6	1	1	0
4	3	9	3	6	18	7	0	10	7
5	4	4	2	9	8	8	5	9	12
6	4	18	4	1	9	16	8	3	14
7	5	11	7	7	11	3	3	5	16
8	6	4	2	3	12	8	4	7	18
9	6	16	0	4	13	12	0	8	0
10	7	7	2	4	14	14	4	8	22
11	7	17	8	8	15	15	5	7	23
12	8	7	8	1	16	5	4	2	25
13	8	17	0	6	17	14	1	2	26
14	9	5	10	7	18	11	9	5	27
15	9	14	2	9	19	8	5	8	29
16	10	2	1	4	20	4	2	8	30
17	10	9	6	5	20	19	1	0	31
18	10	16	6	6	21	13	1	2	32
19	11	3	1	9	22	6	3	8	33
20	11	9	4	7	22	18	9	5	34
21	11	15	3	3	23	10	6	7	35
22	12	0	9	9	24	1	7	9	36
23	12	6	0	8	24	12	1	6	36
24	12	11	0	0	25	2	0	1	37
25	12	15	8	0	25	11	4	0	38
26	13	0	0	7	26	0	1	5	39
27	13	4	2	5	26	8	5	0	39
28	13	8	1	4	26	16	2	9	40
29	13	11	9	7	27	3	7	5	40
30	1	15	3	5	27	10	7	1	41
31	13	8	5	9	27	17	1	9	41

4 Pound. 5 Pound. 6 Pound:

yea. | l. s. d. 10 | l. s. d. 10 | l. s. d. 10

1	3	15	5	6	4	14	4	0	5	13	2	4
2	7	6	8	0	9	3	4	0	11	0	0	0
3	10	13	10	0	13	7	3	6	16	0	9	1
4	13	17	2	5	17	6	6	1	20	15	9	7
5	16	11	12	8	21	1	2	8	25	5	5	8
6	19	13	4	6	24	11	8	7	29	10	0	9
7	22	6	7	0	27	18	2	8	33	9	10	6
8	24	16	9	4	31	0	11	7	37	5	2	1
9	27	4	1	6	34	0	2	0	40	16	2	4
10	29	8	9	6	36	16	0	1	44	3	2	5
11	31	10	11	4	39	8	8	2	47	6	5	1
12	33	10	8	4	41	18	4	6	50	6	0	7
13	35	8	2	5	44	5	3	2	53	2	3	8
14	37	3	7	1	46	9	5	9	53	15	4	7
15	38	16	11	7	48	11	2	7	58	5	5	6
16	40	8	5	6	50	10	7	0	60	12	8	4
17	41	18	2	1	52	7	8	7	62	17	3	2
18	43	6	2	4	54	2	9	1	64	19	2	7
19	44	12	7	7	55	15	9	7	66	18	1	6
20	45	17	7	1	57	6	11	9	68	16	4	6
21	47	1	1	5	58	16	4	8	70	11	8	2
22	48	3	3	9	60	4	1	8	72	4	1	8
23	49	4	3	2	61	10	4	0	73	16	4	8
24	50	4	0	3	62	15	0	4	75	6	0	5
25	51	2	8	0	63	18	4	0	76	14	0	0
26	52	0	3	0	65	0	3	7	78	0	4	5
27	52	16	10	1	66	1	0	6	79	5	3	1
28	53	12	5	9	67	0	7	3	80	8	8	8
29	54	7	3	0	67	19	0	8	81	10	10	6
30	55	1	2	2	68	16	5	7	82	11	9	3
31	55	14	3	9	69	12	10	9	83	11	5	0

The value of Annuities at 6 per cent.

7 Pound.

8. Pound.

9 Pound.

yea.	7 Pound.				8. Pound.				9 Pound.			
	l.	s.	d.	10	l.	s.	d.	10	l.	s.	d.	10
1	6	12	0	9	7	10	11	3	8	9	9	7
2	12	16	8	0	14	3	4	1	16	10	0	1
3	18	14	2	6	21	7	8	1	24	1	1	7
4	24	5	1	3	27	14	5	0	31	3	8	6
5	29	9	8	7	33	13	11	1	57	18	2	7
6	34	8	5	1	39	6	9	2	44	5	1	4
7	39	1	6	4	44	13	2	1	50	4	9	9
8	43	9	4	4	49	13	6	8	55	17	9	1
9	47	12	2	8	54	8	3	2	61	4	3	6
10	51	10	4	9	58	17	7	3	66	4	9	7
11	55	4	1	9	63	1	10	8	7	19	7	6
12	58	13	8	8	67	1	4	9	75	19	1	1
13	61	19	4	5	70	16	5	1	79	13	5	7
14	65	1	3	5	74	7	2	3	83	13	1	1
15	67	19	8	5	77	13	11	5	87	8	2	4
16	70	14	9	9	80	16	11	3	90	19	0	7
17	73	6	9	7	83	16	4	3	94	5	10	8
18	75	15	10	3	86	12	4	9	97	8	11	6
19	78	2	1	6	89	5	3	5	100	8	5	5
20	80	5	9	4	91	15	2	2	103	4	7	0
21	82	6	11	6	94	2	3	0	105	17	6	4
22	84	5	9	8	96	6	7	8	108	7	5	8
23	86	2	5	6	98	8	6	4	110	14	7	2
24	87	17	0	6	100	8	0	6	112	19	0	7
25	89	9	8	0	102	5	5	0	115	1	0	0
26	91	0	5	3	104	0	6	0	117	0	6	8
27	92	9	5	6	105	13	8	2	118	17	10	7
28	93	16	10	3	107	4	11	8	120	13	1	3
29	95	2	8	4	108	14	6	1	122	6	3	9
30	95	7	0	9	110	2	4	4	123	17	8	0
31	97	10	0	8	111	8	7	8	125	7	2	8

A Table of the Names, Weight and Valuation of English Gold.

The Names and Titles of the Gold.	The weight		The Value:	
	Penny Weight:	Grains.	s.	d.
The Royal	4	23	16	6
The half Royal	2	11	8	3
Old Noble	4	6	14	8
Half old Noble	2	4	7	4
Angel	3	8	11	0
Half Angel	1	16	5	6
Salute	2	5	6	11 ob.
Two parts of a Salute	1	11	4	7
George Noble	3	0	9	11
Half George Noble	1	12	4	11 ob.
First Crown K. H. 8.	2	9	6	11 ob.
Base Crown K. H.	2	0	5	6
Great Sovereign	10	0	33	0
Best Sovereign, K. H.	3	14	11	8 ob.
Sovereign K. H.	4	0	11	0 ob.
Edward Sovereign	3	14	11	0
Elizabeth Sovereign	3	14	11	0
Elizabeth Crown	1	10	5	6
Unites of K. James	6	10	22	0
Double Crown K. James	3	5	11	0
Britain Crown K. Ja.	1	14	5	6
Thistle Crown K. Ja.	1	6	4	4 ob.
Half Brit. Crown K. Ja.	0	19	2	9
Last coyn of K. Charls.	5	20	20	0
Half Piece K. Charls	2	12	10	0
The quarter Piece K. C.	1	11	5	0

The agreement between the 100 *l.* weight of *London*, and the weight of these places following, collected of those which I think have gone the neereſt to the truth, being very uſefull for all that do deſire to know, or have occaſion to make uſe of forraign weight reduced into our weight uſed among us.

100 *l.* Weight at *London*, is at

Antwerp	96	Noremberg	90
Cullen	90	Bruges	90
Bafil	90	Ausburgh	95
Ulme	96	Leipzig	99
Preſlau	120	Lubeck	95
Danzig	116	Geneva	81
Roane	81	Marſeiles	112
Rochel	112	Paris	91
Tholouſe	110	Genua	141
Lyons.	105	Millain	141
Venice <i>ſmall weight</i>	151	Padoua	133
<i>Great weight</i>	95	Parma	139
Ferrara	122	Ancona	130
Florence	131	Roma	127
Naples	142	Cicilia	142
Laquilla	143	Lisbon <i>ſmall weight</i>	90
Caſtile	102	<i>Great weight</i>	83
Frankfort	90		